EFFECTIVENESS OF TEGADERM VERSUS DYNAPLASTER UPON PAIN PERCEPTION AND OCCURENCE OF INFECTION DURING REMOVAL AMONG CHILDREN

BY

PREMALATHA.T

A DISSERTATION SUBMITTED TO THE TAMILNADU DR.M.G.R. MEDICAL UNIVERSITY, CHENNAI, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN NURSING

APRIL 2014

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DECLARATION

I hereby declare that the present dissertation entitled **"Effectiveness of Tegaderm Versus Dynaplaster upon Pain Perception and Prevalence of Infection during Removal among Children at Selected Hospitals, Chennai."** is the outcome of the original research work undertaken and carried out by me under the guidance of **Dr. Latha Venkatesan,** M.Sc (N)., M.Phil., Ph.D., **Principal** Apollo College of Nursing and **Prof. Nesa Sathya Satchi,** M.Sc (N).,Ph.D., Apollo College of Nursing, Chennai. I also declare that the material of this has not found in any way, the basis for the award of any degree or diploma in this university or any other universities.

M.Sc., (N) II Year

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SYNOPSIS

A Comparative Study to assess the Effectiveness of Tegaderm Versus Dynaplaster upon Pain Perception and Occurrence of Infection During Removal among Children at Selected Hospitals, Chennai.

The Objectives of the Study were,

1. To assess the level of pain perception and occurrence of infection during removal of tegaderm versus dynaplaster among children.
2. To compare the effectiveness of tegaderm versus dynaplaster upon pain perception and occurrence of infection among children.
3. To determine the effectiveness of tegaderm versus dynaplaster among children.
4. To determine the association between selected demographic variables and pain perception during removal of tegaderm versus dynaplaster among children.
5. To determine the association between selected clinical variables and pain perception during removal of tegaderm versus dynaplaster among children.
6. To determine the association between selected demographic variables and occurrence of infection during presence of tegaderm versus dynaplaster among children.
7. To determine the association between selected clinical variables and occurrence of infection during presence of tegaderm versus dynaplaster among children.
8. To determine the association between selected demographic variables and effectiveness of tegaderm versus dynaplaster among children.

9. To determine the association between selected clinical variables and effectiveness of tegaderm versus dynaplaster among children.
10. To assess the level of satisfaction of nurses using tegaderm and dynaplaster.

The conceptual framework for the study was based on king's Goal Attainment Theory. A comparative study with Post-test only design was used. The study was conducted at Apollo Children Hospitals, Chennai. The study included 60 children who were selected by purposive sampling 30 were in the intervention group I and 30 were in the intervention group II. The variables of the study were pain perception and prevalence of infection.

An extensive review of literature and guidance by experts laid the foundation of development of demographic variable proforma, clinical variable proforma, effectiveness checklist, infection check list, wong baker's pain scale and rating scale on level of satisfaction of nurses. The data collection tools were validated and reliability was established. The main study was conducted after the pilot study.

The level of pain perception and prevalence of infection and effectiveness was assessed for tegaderm versus dynaplaster of children. The level of satisfaction of nurses was assessed among both the groups. The data obtained was analysed using descriptive and inferential statistics.

Major Findings of the Study were,

- Most of the children were aged 1-3yrs (50%, 26%) Significant percentage of children were males (50%,60%),from nuclear family (53%,33%) with a family monthly income of 20000-30000 (40%,30%) and majority of the children were in primary school (47%,67%) in both tegaderm & dynaplaster group of children respectively.
- Majority of the children with tegaderm and dynaplaster had no co morbid illness (97%,93%), significant percentage of children had orthopaedic and surgical problems (63.3%,83.3%), most of the children received medications (57%,27%) through peripheral line (80%,93%) placed in Bracheo cephalic vein (80%,93%). Most of the children were intravenous line dependent for more than three days (47%, 63%) and which was secured with tegaderm and dynaplaster (47%, 83.3%). Sixty percent of children with dynaplaster had complications.
- It was noted that majority of children with tegaderm experienced no pain and had no infection during removal (63.3%,80%) and majority of children with dynaplaster experienced severe pain and had infection during removal (75%,43%).
- It was noted that majority of the children using tegaderm had effective out come (90%) and (27%) had effective out come with dynaplaster.
- Mean and standard deviation with regard to pain perception of children while removing tegaderm was (M-1.06,SD-0.9) and while removing dynaplaster was (M-8.4,SD-2.46).The difference was significant at $p<0.001$level. The findings also revealed that the occurrence of infection in children while removing tegaderm was (M-0.2, SD-0.1) and while removing

dynaplaster was (M-1, SD-0.4).The difference was significant at $p<0.001$ level. Hence null hypothesis H_{01} was rejected.

- The mean and standard deviation with regard to effectiveness of tegaderm was (M-26, SD-6.1) and dynaplaster group of children was (M-17, SD-2.6). The difference was significant at $p<0.001$ level. Hence the null hypothesis H_{02} was rejected.
- There was significant association between selected demographic variables and pain perception with regard to monthly income (χ^2 =12.1df = 1) among children with tegaderm and in children with dynaplaster age of child (χ^2=5.25df =1),type of family(χ^2=3.9,df =1) at $p<0.001$ $p<0.05$. Hence the null hypothesis H_0 3was rejected.
- There was significant association between selected clinical variables and pain perception in children on tegaderm with regard to diagnosis (χ^2 =4.3df = 1)and in children with dynaplaster with regard to dynaplaster insitu (χ^2=4.78df =1) , site of intravenous line insertion, (χ^2=4.5df =1) at $p<0.05$.Hence the null hypothesis H_{04} was rejected.
- There was significant association between selected demographic variables and presence of infection among children with tegaderm in regard to area of residence, ($\chi 2$ =4.39df =1) and in children with dynaplaster with regard to type of family (χ^2=4.7df =1) at $p<0.05$ dynaplaster. Hence the null hypothesis H_{05} was rejected.
- There was significant association between selected clinical variables and presence of infection among children with tegaderm and dynaplaster with regard to number of days of intravenous line insitu, ($\chi 2$ =4.39df = 1) at $p<0.05$. Hence the null hypothesis H_{06} was rejected.

- There was significant association between selected demographic variables and effectiveness of tegaderm with regard to age, ($\chi 2 = 5.0$df = 1) and dynaplaster with regard to type of family (χ^2=4.78,df =1) at p<0.05. Hence the null Hypothesis H_{07} was rejected.
- There was significant association between selected clinical variables and effectiveness of tegaderm with regard to diagnosis, ($\chi^2 = 4.2$,df = 1) and dynaplaster with regard to indications for intravenous line ($\chi^2 = 5.37$,df = 1) at p<0.05.Hence the null hypothesis H_{08} was rejected.
- The findings revealed that most of the tegaderm group of nurses were highly satisfied with tegaderm (90%), whereas (73%) of nursed using dynaplaster were moderately satisfied (73%).

Recommendations

- A study can be conducted on cost effectiveness of tegaderm versus dynaplaster.
- A similar study can be done on umbilical vein securing in preterm babies.
- A similar study can be done on a larger population to generalize results.
- A study can be conducted to assess the occurrence of infection tegaderm pads used for surgical dressing among post operative children.
- Similar study can be done on Endo tracheal tube intubation securing in preterm, term, neonates and children.

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CHAPTER I

INTRODUCTION

Back ground of the study

"A baby is God's opinion that the world should go on."

- Carl Sandburg

Children are the greatest gift God will give to you and their souls the heaviest responsibility He will place in your hands. Take time with them; teach them to have faith in God. Be a person in whom they can have faith. When you are old, nothing else you've done would have mattered as much. The Wealth of a nation is not so much in its economical and natural resources but it lies more decidedly in the kind and quality of the wealth of its children and youth. It is they who will be the creators and shapers of a nation's tomorrow. The Children of today will be adults of tomorrow. Their quality and personality will determine the kind of destiny that beckons the nation.

Pain is an unpleasant sensory and emotional experience usually produced by something that injures, or threatens to injure, the body. Pain begins with a stimulus, but is influenced by physiological and psychological factors before it becomes part of our consciousness. Pain is a global health problem which exists from birth to the last stage of the life. It's a very unpleasant sensation that cannot be shared with others. Children are becoming increasingly subjected to a longer battery of invasive investigation which is painful .Assessing and treating pain in children can be difficult. Newborns and children are often unable or unwilling to communicate the presence, location and intensity of pain .Parents may be reluctant to acknowledge their child's pain.

The American Academy of Paediatrics and the American pain society addressed the need for pain management in children in their joint statement presented in 2001.They noted that, despite comprehensive research anecdotal experience and ample knowledge from the past 10 to 15 years, the assessment and treatment of pain in children frequently remains inadequate Pain in children, and whether children feel pain, has been the subject of debate within the medical profession for centuries. Prior to the late nineteenth century, it was only in the last quarter of the 20th century, that scientific techniques were finally established children definitely do experience pain, probably more than adults and has developed reliable means of assessing and treating it.

The International Association for the Study of Pain IASP, 1979, defined pain as an unpleasant sensory and emotional experience associated with potential damage, or described in terms of such damage. It is the most common reason for seeking health care. The health personnel must have the knowledge and skills to assess pain, to implement pain relief strategies, and to evaluate the effectiveness of these strategies, regardless of the setting.

Illness and hospitalization expose children to unfamiliar and unpleasant feelings. Since children have little experience and comprehension of pain, it can cause intimidation and anxiety for them. Millions of children undergo procedures, which cause considerable distress. Children requiring needle stick such as injections, IV catheters and blood sampling, view these procedures as frightening and as a significant source of pain.

Although pain is something that we invariably want to escape or stop, it serves in several very important functions. Pain protects us by triggering a

reflexive withdrawal from something damaging before we can suffer further injury, such as when we drop a hot pan before we sustain extensive burns. It is also a warning system that lets us know when an injury is about to occur: the burning ache in our muscles during extreme exertion warns us to stop using them. Pain forces us to immobilize or protect an injured part, such as a broken ankle, thus giving it a chance to heal. Pain also lets us know when we need to seek medical help, and teaches us what behaviours to avoid in the future.

Neonates and young infants have immature central nervous system, lacking myelination of pain fibres and therefore clinicians believed that these children are incapable of perceiving pain. Research has challenged this assumption and demonstrated that neonates and infants do indeed feel pain. They noted that the research supported the noceptive process between infants and adults differed, in that the infants primary transmission of pain impulses alone are non mylinated C fibres ,there is less precise pain signal transmission in the spinal cord and there is lack of descending inhibitory transmission. For this, infants may actually have a lower pain threshold and perceive pain more intensely than adults or older children.

Da Silva (2010) & Delph (2011) say that nurses are responsible for maintaining peripheral vascular access without complications to the circulatory system or local tissue. Although it is a routine procedure, peripheral venipuncture is a complex, highly skilled process that can pose a risk for patients and health care professionals if not performed properly Moreover, IV insertions can be expensive and unpleasant, often causing additional institutional costs and staff time. Recent recommendations from the Centres for Disease Control and

Prevention 2010 indicates that peripheral Intravenous can remain in place for 96 hours or more, as long as they are functioning properly and the patient is not showing signs of infection. In addition, the Joint Commission's 2010 National Patient Safety Goals highlight the need to reduce risk of health care associated infections(The Joint Commission, 2010). Strategies such as better IV securement for increased patient comfort and safety are needed to prolong IV function while preventing complications of infections, phlebitis, extravasations, infiltration, occlusion, or accidental catheter withdrawal.

In the United States, 15 million central vascular catheter (CVC) days (i.e., the total number of days of exposure to CVCs among all patients in the selected population during the selected time period) occur in intensive care units (ICUs) each year. Studies have variously addressed catheter-related bloodstream infections (CRBSI). These infections independently increase hospital costs and length of stay [2-5], but have not generally been shown to independently increase mortality. While 80,000 CRBSIs occur in ICUs each year, a total of 250,000 cases of Blood stream infections have been estimated to occur annually, if entire hospitals are assessed. By several analyses, the cost of these infections is substantial, both in terms of morbidity and financial resources expended.

Tegaderm bandages are clear, waterproof dressings that can be placed over minor skin injuries, minor burns, IV sites and some surgical wounds. The manufacturer, 3M, recommends that Tegaderm dressings be changed a minimum of every seven days. Removing the dressing, cleaning the site and applying new dressing can help prevent wound infection. The best method for removing Tegaderm depends on the patient's age and skin sensitivity.

Need for the study

There is an increasing focus on the recognition, assessment and management of pain in children. Children under go many painful procedures in different clinical environment. The paediatric nurse should be familiar with general concepts about the perception of pain in children. Many pain assessment tools have been developed and restructured to provide the clinical nurse specialist with valid and reliable scale to assess pain in children and assess the effect of intervention

Securement and visualization of peripheral intravenous catheter sites PIV is a common problem for pediatric nurses. Infiltration of IV fluid can lead to serious complications. Quality data, staff nurse, and nursing administrations concern about lack of visualization of PIV sites led to the project to identify best evidence for securing PIVs so that they could be assessed easily.

Orlando (2008) conducted a study which implies that the while removing IV line on children with tegaderm experienced less pain and skin irritation when compared with other adhesives. An Integrative Review of Intravenous Securement Devices performing peripheral venipunctures and maintaining peripheral intravenous IV therapy sites are daily responsibilities for medical-surgical nurses. Many nurses regularly perform peripheral cannulation as part of their role Kelly, (2009) says IV access is used routinely for administration of drugs, fluids, nutrition, blood, and blood products Ahlqvist (2006) states that while venipuncture is the most common invasive procedure performed on hospitalized patients, very little research has been done on the best practices for stabilization of the IV site.

Nurses are responsible for maintaining peripheral vascular access without complications to the circulatory system or local tissue. Although it is a routine procedure, peripheral venepuncture is a complex, highly skilled process that can pose risk for patients and health care professionals if not performed properly Dasilva & Dias(2010). Moreover, IV insertions can be expensive and unpleasant, often causing additional institutional costs and staff time .Recent recommendations from the Centre for Disease Control and Prevention (2010) indicates that peripheral IVs can remain in place for 96 hours or more, as long as they are functioning properly and the patient is not showing signs of infection.

The Joint Commission's 2010 National Patient Safety Goal high light the need to reduce risk of health care-associated infections. Strategies such as better IV securement for increased patient comfort and safety are needed to prolong IV function while preventing complications of infections, phlebitis, extra vasation, infiltration, occlusion, or accidental catheter with drawal.In this of infections, phlebitis, extra-vasation, infiltration, occlusion, or accidental catheter with drawal.In this integrative review, the current research on the effectiveness of IV securement devices will be reviewed and practical implications for evidence-based practices in IV care for medical-surgical nurses will be provided.

In addition, current unresolved questions will be high-lighted. Catheter stabilization increasingly is recognized as an important intervention in IV therapy and maintenance. With stabilization, less movement of the catheter occurs at the insertion site, and the catheter is less likely to be dislodged Gorski (2007). Despite the routine use of peripheral lines for IV access, very few studies have considered complications related to peripheral IV therapy Schears (2007). For this review,

catheter securement device was defined as a mechanical device that is used to preserve the integrity of the access device and to prevent catheter migration and loss of access Infusion Nurses Society INS 2006. The term stabilization often is used interchangeably with securement when referring to a structure, support, or foundation that makes something less likely to fall, give way, or become displaced INS (2011).

Method of dressing the IV ensures security and depends upon the child's age, condition of the skin, site of the IV, child's activity and mobility. Either traditional tapes and Tubular-Fast or the tegaderm/mefix dressing is acceptable. In the United States it is estimated that there are 1.7 million health care–Associated infections HAIs resulting in approximately 99,000 deaths of these Deaths, approximately 31,000 are caused by bloodstream infections.

Wenzel and Edmond calculated that nosocomial bloodstream infections represented the eighth leading cause of death in the United States. Overall, there are an estimated 249,000 bloodstream infections in United States hospitals each year. These bloodstream infections have been estimated to increase the duration of hospitalization by 7 to 21 days. Following systematic review of literature, Stone and colleagues4 estimated the attributable cost of a bloodstream infection as being between $36,441 and $37,078 (2002 dollars). More recently, Anderson and colleagues5 calculated the cost of nosocomial bloodstream infections as $23,242 _ $ 5184 (2005 dollars).

Incidence rate statistics in the USA: Estimated 2.013 infections due to intravenous lines or catheters occurred per 1,000 hospital discharges excluding Immuno compromised or cancer patients and neonates in the US 2000 National

Healthcare Quality Report(AHRQ) DHHS, 2003 Estimated 1.89 infections due to intravenous lines or catheters occurred per 1,000 hospital discharges (excluding Immuno compromised or cancer patients and neonates of people aged 0 to 17 in the US 2000 National Healthcare Quality Report, NHRQ, DHHS, 2003 Estimated 1.89 infections due to intravenous lines or catheters occurred per 1,000 hospital discharges (excluding Immuno compromised or cancer patients and neonates of people aged 18 to 44 in the US 2000 National Healthcare Quality Report, AHRQ, DHHS, 2003.

Pediatric nurses at a 246-bed community-owned district hospital observed they were frequently attempting to rescue or restart peripheral intravenous catheter sites (PIVs) due to varied pediatric IV securement practices throughout the hospital. In the context of exemplary professional practice, an exploratory Evidence Based Practice (EBP) project was designed to increase knowledge about the best practices in maintaining and preserving pediatric PIVs. Little research was available describing optimal practice. Evidence regarding intermittent versus continuous infusion to maintain patency was equivocal. Securement and visualization of peripheral intravenous catheter sites PIV is a common problem for pediatric nurses. Infiltration of IV fluid can lead to serious complications. Quality/Risk data, staff nurse, and nursing administration concerns about lack of visualization of PIV sites led to an EBP project to identify best evidence for securing PIVs so they could be assessed easily.

Traditionally, PIVCs have been secured with medical tape, tape with transparent dressings, or tape and gauze. One study documented the use of IV catheter securement with tape as resulting in only an eight percent PIVC success

rate. In addition, excess use of tape may obscure the IV site, preventing early detection of complications, and increasing the potential for infection. Complications arise when Intravenous catheters and tubing connections are not properly secured. Some consequences of poor catheter securement include phlebitis, infiltration, dislodgement, leaking, infection, patient pain and dissatisfaction, patient safety concerns, nursing interruptions, and additional costs. In many cases, the PIVC needs to be removed and another restarted in a new location.

According to a large study comparing catheter stabilization devices to tape, unscheduled restarts when PIVCs are replaced after one or more have already failed, account for between 40 percent and 70 percent of all PIVC insertions. Complication rates have been shown to be directly related to the method used for securing the PIVC setup to the patient.PIVC restarts increase the healthcare worker's risk of exposure to blood borne pathogens, and every time it is necessary to re-stick a patient there is the potential for a healthcare worker to suffer a needle stick injury. With better stabilization and longer dwell times, healthcare institutions can reduce the risk to healthcare workers, patient discomfort, and accidental catheter dislodgement.

The 2011 Infusion Nursing Standards of Practice includes a standard on catheter stabilization that says, Vascular access device VAD stabilization shall be used to preserve the integrity of the access device, minimize catheter movement at the hub, and prevent loss of access. The 2011 CDC Guidelines for the Prevention of Intravascular Catheter-Related Infections states: Use a suture-less catheter securement device to reduce the risk of infection for intravascular catheters. While

this statement is most often associated with the risk of infection with central lines, recent evidence published in Infection Control and Hospital Epidemiology shows that the risk of infection with short PIVCs may be an under-recognized complication.

The Infusion Nursing Standards of Practice no longer list dressings alone as catheter stabilization devices. Although dressings protect the insertion site, there is little to no evidence that they enhance catheter stabilization by themselves or in combination with tape. The chosen catheter stabilization method should let you assess the catheter insertion site easily and should not alter the flow of blood or fluid through the catheter. A randomized, controlled trial showed that the built-in stabilization platform of a closed IV catheter system used with an IV securement dressing provided effective stabilization. This combination provided significantly reduced dislodgement and could reduce the need for restarts and the associated costs.

The size of the footprint of the stabilization appears to be a critical component. This would be either a stabilization device added to a traditional catheter hub or a platform built into the catheter design in combination with a dressing for catheter securement. One study documented a cost savings from fewer restarts and reduced nursing time when hospitals changed to a combined PIVC and stabilization device, even though upfront costs were higher.

The researcher during her personal experiences in children's ward had practically witnessed the reaction of children to painful procedures like heel prick, immunization, cannulation, vein puncture and removing IV line securing plaster. Increased education and research regarding child pains within the past two

decades have highlighted the issue, but appropriate pain utilization of pain management continues to be a problem. Removal of intravenous line securing plaster is a common procedure that all children need to undergo in order to protect the health from the pain and infection. Tegaderm patch is more useful while removing less pain will be there simultaneously preventing infections because of is made up chlorhexine. Whether pain is increasing or decreasing while removing tegaderm plaster and dynaplaster meanwhile assessing the pain using standard pain scale like neonatal infants pain scale and face limp activity cry and console scale.

Statement of the Problem

A Comparative Study to assess the Effectiveness of Tegaderm Versus Dynaplaster upon Pain Perception and occurrence of Infection during Removal among Children at Selected Hospitals, Chennai.

Objectives of the Study

1. To assess the level of pain perception and occurrence of infection during removal of tegaderm versus dynaplaster among children.
2. To compare the effectiveness of tegaderm versus dynaplaster upon pain perception and occurrence of infection among children.
3. To determine the effectiveness of tegaderm versus dynaplaster among children.
4. To determine the association between selected demographic variables and pain perception during removal of tegaderm versus dynaplaster among children.

5. To determine the association between selected clinical variables and pain perception during removal of tegaderm versus dynaplaster among children.
6. To determine the association between selected demographic variables and occurrence of infection during presence of tegaderm versus dynaplaster among children.
7. To determine the association between selected clinical variables and occurrence of infection during presence of tegaderm versus dynaplaster among children.
8. To determine the association between selected demographic variables and effectiveness of tegaderm versus dynaplaster among children.
9. To determine the association between selected clinical variables and effectiveness of tegaderm versus dynaplaster among children.
10. To assess the level of satisfaction of nurses using tegaderm versus dynaplaster

Operational Definitions

Effectiveness

In this study it refers to the pain perception and occurrence of infection when using IV securement in the tegaderm and dynaplaster. The effectiveness is measured & compared with the outcome of intervention group I and group II of children using wongbaker faces scale, to assess the pain and infection checklist to assess the occurrence of infection.

Children

In this study it refers to the children from 1 year to 12 years whose intravenous line is secured with tegaderm & dynaplaster.

Nurses

In this study it refers to a person who is a registered nurse working in pediatric ward or paediatric intensive care unit, cardiac intensive care unit & is and is able to apply tegaderm & dynaplaster.

Out come

In this study it refers to changes in pain perception, decreased occurrence of infections and increased satisfaction among nurses on intravenous line securement using tegaderm & dynaplaster. It is measured using checklist.

Pain perception.

In this study it refers to the pain experienced by children during removal of tegaderm & dynaplaster and is measured by Wong bakers faces scale.

Tegaderm

In this study it refers to a transparent securing agent with anti viral and anti bacterial substance, which is used to secure an intravenous line.

Dynaplaster

In this study it refers to an adhesive tape used to secure intravenous line

Infection

In this study it refers to those children with intravenous line developing fever, urticaria, pain, redness, tenderness around the site after applying the securing tape and while removing the tape.

Assumptions

- Children do experience pain while removal of securing tape from intravenous site
- Skin integrity can be impaired during removal of securing tape
- Infections can occur from intravenous tapes

Null Hypothesis

Ho_1 There will be no significant difference between pain perception and occurrence of infection among children during removal of tegaderm versus dynaplaster

Ho2There will be no significant difference in the effectiveness of tegaderm versus dynaplaster.

Ho_3 There will be no significant association between selected demographic variables and pain perception of children during removal of tegaderm versus dynaplaster.

Ho_4 There will be no significant association between selected clinical variables and pain perception of children during removal of tegaderm versus dynaplaster.

Ho_5 There will be no significant association between selected demographic variables and occurrence of infection among children during presence of tegaderm versus dynaplaster.

Ho_6 There will be no significant association between selected clinical variables and occurrence of infection among children during presence of tegaderm versus dynaplaster.

Ho_7 There will be no significant association between selected demographic variables and effectiveness tegaderm versus dynaplaster.

Ho_8 There will be no significant association between selected clinical variables and effectiveness of tegaderm versus dynaplaster.

Delimitation

The study was delimited to

- Children aged from one year to twelve years.
- Children using tegaderm.
- Children using dynaplaster.
- Children who are admitted in selected hospitals.

Conceptual Framework

The conceptual frame work deals with the interrelated concepts or abstractions assembled together in a rational scheme by virtue of their relevance to a common theme (Polit and Beck, 2008).

The conceptual framework of present study is based on "king's goal attainment theory". According to Imogene king; nursing is defined as the process of action, reaction, whereby nurses and clients share the information about their perception. Through perception and communication they identified the problem through which they set goals and take necessary action.

It was developed from an existing theory of interest and proposing relationship among them the theory gives direction

King's goal attainment theory is based on the concepts of personal, interpersonal and social systems including perception, judgement, action, reaction, interaction, transaction and perception.

Perception

A person imports energy from the environment and transforms, processes and stores it. The study assumes that there is an interpersonal relationship between the nurse investigator and participants. The nurse investigator perceives that there is a need for the development of an alternative nursing care-tegaderm in group I and dynaplaster in group II to reduce the pain and prevalence of infections is assessed using observation check list and Wong baker's pain scale.

Judgement

Analyse the areas of action to be carried out. In this study the nurse investigator judges whether tegaderm and dynaplaster reduce the pain while on removing both adhesives and reduces the complications. Thus the researcher takes decision to apply the tegaderm for group I and dynaplaster for group II.

Action

Reaction means developing action and acting on perceived choices for goal attainment. Here the reaction means decrease in pain and increased antimicrobial activity of Adhesives. The tegaderm applied the securing the intravenous line in group I children were highly satisfied and the dynaplaster applied the securing the intravenous line in group II children were satisfied. The nurse investigator makes the arrangement for disseminating the information regarding tegaderm adhesive for children were benefitted.

Interaction

Interaction refers to verbal and non verbal behaviour between an individual and the environment or among two or more individuals. It involves goal directed perception and communication. Action leads to interaction where the

nurse investigator executes her removal of tegaderm and dynaplaster upon the pain perception and associated with the prevalence of infections with children receiving intravenous line.

Transaction

Imogene king says that the transaction is two individual mutually identify goals and the means to achieve them. They reach an agreement about how to attain these goals and then set about to realize them. In this transaction occurs among nurse, child, family and other health team workers.

Feed back

Outcome may either be highly satisfied or highly satisfied. Highly satisfied shows the effectiveness of tegaderm and satisfied shows the dynaplaster. In this study appraise the level of satisfaction on nurses through rating scale, if tegaderm and dynaplaster is satisfactory it can be disseminated and implemented clinical settings. If unsatisfactory the activity is planned again or other best method is adopted.

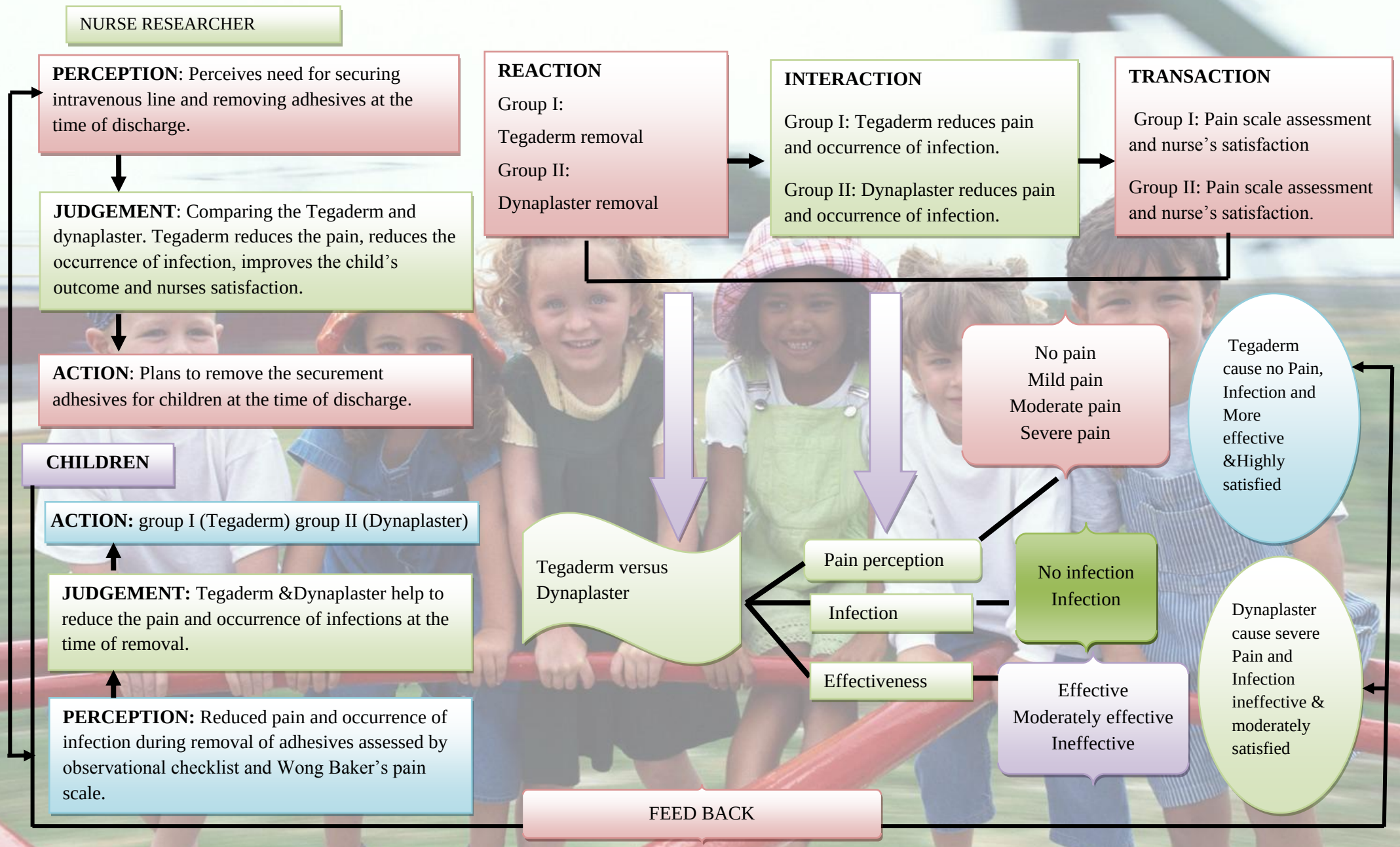

Fig:1 Conceptual Frame Work based on modified kings goal attainment theory

Projected Outcome

The projected outcome will be reduction of pain, decrease in complication, ease of removal, prevalence of infection, protection of IV site and increased in the level of satisfaction of nurses while applying and removing the adhesive tapes in children.

Summary

This chapter has dealt with the background, need for the study, and statement of the problem, objectives, operational definitions, assumptions null hypothesis, delimitations and conceptual framework.

Organization of the Report

Further aspects of the study are presented in the following five chapters.

CHAPTER II **:** Review of the literature.

CHAPTER III **:** Research methodology includes research approach, research design, and setting, population, sampling techniques, tool description, content validity and reliability of tools, pilot study, data collection procedure and plan for data analysis**.**

CHAPTER IV **:** Analysis and interpretation of data.

CHAPTER V **:** Discussion.

CHAPTER VI **:** Summary, conclusion, implications and recommendations.

CHAPTER II

REVIEW OF LITERATURE

A literature review is an organised written presentation of what has been published on a topic by scholars (Burns & groove, 2004). This chapter deals with a review of published and unpublished research studies and from related material for the present study. The review helped investigator to develop an insight into the problem area. This helped the investigator in building the foundations of the study.

The task of reviewing literature involves the identification, selection, critical analysis, and reporting of existing information on the topics of interest. A review acquaints the researcher with what has been done in the field and it minimizes possibilities of unintentional duplications. It justifies the need for replication provides the basis of future investigations and help to relate the findings of one study to another.

The review of literature for this study is presented under the following headings:-

- **Literature related to securement**
- **Literature related to pain in children**
- **Literature related to infections in children**
- **Literature related to comparison of tegaderm and dynaplaster**

Literature related to Securement

Hetzler (2011) in United States study was conducted to assess the Improving Securement and Visualization of Pediatric Peripheral Intravenous Catheters, after a review of the literature, pediatric nursing staff initiated data

collection to determine the current pediatric PIV practices with the plan to evaluate and refine these practices to promote catheter survival times and decrease patient complications. Data on 60 PIV sites were analyzed and found 50 percent were discontinued in fewer than 24 hours. Securement practices were inconsistent. The most frequent reason for loss of IV site was infiltration 15, followed by patient pulling out 4, clot 1 and insertion site inflammation 1. Sixteen of 60 sites 25 percent infiltrated before 72 hours. Pediatric RNs established a new peripheral IV securement protocol. This was communicated throughout the hospital's departments that work with pediatric patients via a poster and simulation model. The exploratory evidence-based practice project work was translated into an article for publication. Tape stabilizing knuckle flexion and securing hand to arm board. Additional tape stabilizing thumb Elastic gauze netting secures site and lines, while providing nurse ability to visualize site. Placing fingers over end of arm board allows for flexion of fingers. This is preferred for infants. Support for participation in the 2011 Annual Pediatric Nursing National Conference has been generously provided by Kootenai Health Foundation. Improving Securement and Visualization of Pediatric Peripheral Intravenous Catheters.

Literature related to Pain in Children

Orlando (2008) conducted a study which implies that the while removing IV line on children with tegaderm experienced less pain and skin irritation when compared with other adhesives. The researcher with personal experiences in children ward had practically witnessed the reaction of children to painful procedures like heel prick, immunization, cannula, vein puncture and removing IV line securing plaster. Increased education and research regarding child pains within the past two decades may highlighting the issue, but appropriate pain

utilization of pain management continue to be a problem. Removal of intravenous line securing plaster is a common procedure that all children need to undergo in order to protect the health from the pain and infection. Tegaderm patch is more useful while removing less pain will be there simultaneously preventing infections because of is made up chlorhexine. Whether pain is increasing or decreasing while removing tegaderm plaster and dynaplaster meanwhile assessing the pain using standard pain scale like neonatal infants pain scale and face limp activity cry and console scale

A descriptive study conducted by Vak (2007) on children to view the sources of pain and explore the views on pain relief strategies. An exploratory cross sectional descriptive design and writes technique was used to investigate on what aids the children to think at the time of experiencing pain. The sample was composed of 33% boys and 64% girls of 4- 16 years. The result has shown that mean +_S.D:9.25, +_3.04 and few were different from the mean presented in the children texts and drawing based on developmental stage and on difference based on developmental stage and on difference based on gender.

Owens (2004) in an article on comprehensive review pain measured for children aged between 0 and 3 years discussed their applicability to the group of children. Search of electronic data based and other electronic sources were supplemented by hand review of relevant journals to identify published measures for use in children aged between 0 and 3 years. Twenty eight pain measures were identified in the literature nine for neonates, ten for infants and nine for aged between one and 3 years.

A descriptive study to investigate the prevalence of pain and characteristics of pain frequency, duration, intensity among children and compared across different age and gender conducted by Priyadharshini Johnson (2004).In this study about 735 children from school were surveyed, in which results showed that 715(97.3%) have answered the questionnaires related to pain completely. The study concluded that the prevalence of pain, is increased with age and more pain was complained by female children.

Literature related to Infections in Children

Lynn Hadaway (2012) a study was performed that the rate of infections associated with short peripheral intravenous catheters is thought to be very low, even rare. Approximately 330 million peripheral catheters are sold annually in the United States. Although the rate may be low, the actual number of infections could be relatively high, with most going undetected because of short dwell times and early patient discharges. A recent estimate reported as many as 10000 Staphylococcus aureus bacteraemia from peripheral catheters annually in the United States. This integrative literature review identified soft tissue, bone, and bloodstream infections. Analysis of 45 studies revealed significant knowledge gaps and inadequate clinical practices associated with one of the most common devices used in all health care settings.

A retrospective study was conducted in United States by Trinh (2011) which proved that rate based on the total number of adult inpatient days and the number of patients with a peripheral catheter during a point-prevalence study conducted in 2008. The calculated rate was 0.06 bacteraemia per 1000 catheter-

days. This represents a rate dramatically lower than what was reported by Maki of 0.2 to 0.7 bacteraemia per 1000 catheter-days.

The CDC's Guidelines for the Prevention of Intravascular Catheter-Related Infections, (2011) include revised wording that states there is no need to replace peripheral catheters more frequently than every 72 to 96 hours for the purpose of reducing infection and states that changing the catheter in adults based only on clinical indication is an unresolved issue. The CDC states the following: "Remove peripheral venous catheters if the patients develop [*sic*] signs of phlebitis (warmth, tenderness, erythema, or palpable venous cord), infection, or a malfunctioning catheter."

One randomized, controlled trial was conducted in united states by bausone-gazdad lefaiverc (2010) which proved that of stabilization for peripherally inserted central venous catheters PICCs reported on infections and stabilization. Systemic infections were confirmed in 8 patients and suspected in 2 patients when the PICC was secured with sutures. With the stabilization device, there was 1 confirmed systemic infection and 1 suspected infection. Cellulites occurred in 5 secured with suture versus 3 secured with a stabilization device. There were 85 patients in each group of this study. This study is included because the insertion sites are on the upper extremity, and the burden of organisms on the skin would be very similar to those for peripheral catheter insertion. The differences would be a sterile procedure for PICC insertion versus a "clean" procedure for peripheral catheter insertion. Peripheral catheters are not sutured, which would add to skin disruption. These are the only available data on infectious complications and stabilization for any type of VAD.

Zingg (2009) a study was performed that rates of thrombophlebitis range from 2% to 80%. These rates are taken from 21 studies dating back to 1973. Many factors related to the catheter, drugs, patient, and health care personnel contribute to thrombophlebitis. Data from the above literature review were used to report rates of BSI. Zingg also state that there is a widely held assumption that thrombophlebitis can become Blood stream infection. The connection between thrombophlebitis and BSI and the burden of BSI from short peripheral catheters has not been convincingly established through the available studies. The authors included 10 studies, dating back to 1975, to report that an estimated 5% to 25% of peripheral catheters were colonized with bacteria at the time of removal. Reasons given for the very low BSI rates with relatively high rates of colonization include the short dwell time and fewer manipulations of the peripheral catheter and lack of appropriate surveillance. The rate of local infection associated with peripheral catheters was reported to be 2.3% 9 out of 390 catheters in an Italian study18-a study that was also included in the work by Zingg and Pittet. No description of these infections was provided Palefski 2001did a study was performed on assessed complications in 776 peripheral catheters-639 inserted by infusion nurses and 137 by generalist nurses. Thirty-six percent (36%) of catheters inserted by the generalists and 20% inserted by infusion nurses were removed for complications (P <= .001). Cellulites, infection, and sepsis were tracked by clinical signs and symptoms, but none were reported in either group.

Nahiriya (2009) of Uganda stated that cultured hubs and tips on removal of 391 peripheral catheters in hospitalized pediatric patients. Tips were colonized in 20.7%, hubs were colonized in 11.25%, and 4.86% had the same organisms growing in both the hub and tip. S. aureus was the most prevalent organism,

followed by S. epidermidis. The study provided no information on skin antisepsis, catheter stabilization, dressing, or experience of personnel performing the insertions.

Cunha (2008) a study was performed on Centrally-placed IV-line infections are a frequent cause of fever in the critical care unit. IV-line infection is not usually accompanied by local signs of infection, and usually presents as unexplained fever. The diagnosis should be considered only after other causes of fever have been ruled out. The likelihood of fever being due to IV.-line infection increases with duration of IV catheterization. Skin organisms i.e., Staphylococcus epidermidis / coagulase-negative staphylococci, and to a lesser extent, Staphylococcus aureus are the usual pathogens in IV line infection. Treatment of IV -line infection involves removal of the IV line. Empiric antibiotic therapy directed against gram-positive cocci/aerobic gram-negative bacilli is usually started after blood cultures have been obtained and removed catheter tip sent for semi quantitative culture.

England (2004) and the Republic of Ireland participated in a point-prevalence study on all health care-acquired infections HCAIs in 2004. The overall prevalence was 7.6% in 75 694 patients. Primary BSIs were reported in 264 out of 28 987 (0.9%) patients with a current peripheral catheter; patients who had a peripheral catheter within the previous 7 days produced 48 out of 17 595 (0.3%) BSIs. Patients with a CVC revealed the highest BSI rates of 5%, and those having a CVC within the previous 7 days showed a rate of 2.3%.Lee et al (2009) a study was performed that two studies assessed the skill of inserters in relation to peripheral catheter outcomes. Reported that peripheral catheters inserted by the

emergency department nurses had a greater rate of phlebitis than those inserted by IV therapists: 3.7% vs 2.1%, with an odds ratio of 1.6 (1.003-2.5, 95% CI, *P* = .048). The language in this study indicates that the authors equate phlebitis to infection because 160 of 162 phlebitis cases had microbiological evidence of infection. No site purulence or BSIs were reported.

Norberg (2003) in an article assessed rates of false-positive blood cultures when samples taken during peripheral catheter insertion were compared with blood samples obtained from a separate venipuncture. They reported a 70% reduction in the false-positive rates when a separate, direct venipuncture site was used. This study did not report details of the skin antisepsis procedures and simply stated that they were "standardized." The authors speculated that the differences were related to the ease of drawing the sample when the peripheral catheter was inserted, leading to indiscriminate prescribing of blood cultures.

Palefski (2001) Only two studies were found with some infection information on peripheral catheters from alternative health care settings. Compared outcome data from peripheral catheters inserted by infusion nurses in hospitals and home infusion agencies versus those inserted by generalist nurses. Complications were fewer in those inserted by infusion nurses; however, the data were not reported by type of health care setting.

Literature related to Effectiveness of Tegaderm and Dynaplaster

Travis (2011) in united states conducted study to describe Medical adhesive bandages are extensively used in both inpatient and outpatient medicine. However, few reports describing proven allergic contact dermatitis ACD from medical adhesive bandages exist in the literature. These reports do not adequately

correspond to the frequency that patients report having an "allergy" to medical adhesive bandages. To determine if there is a chemical present in medical adhesive bandages that causes ACD in people who identify themselves as having an "allergy" to medical adhesive bandages. Twenty-six patients were enrolled and underwent patch testing with our standard trays 104 chemicals and a customized adhesive tray 54 chemicals and 10 tapes and bandages in their whole form. We were able to identify an allergen in four patients that was related to their presumed adhesive allergy Mastisol, neomycin/bacitracin two different patients, and cortisone-10 cream, respectively. However, there were no positive allergic reactions to the tapes or bandages or any relevant allergic reactions to our customized adhesive tray. Eight (73%) of the 11 patients who had the bandage or tape left on for 7 days had an irritant reaction.

A prospective post-authorization observational product study was conducted by Blackwell (2011) in United States to describe the meaning of the wound area reduction and healing rate, the occurrence of adverse events was documented. This study demonstrated a wound size reduction of at least 50 % for 72.9 % of the patients with therapy-refractory chronic wounds when treated with Tegaderm Matrix. The safety profile was evaluated; only 4.7 % of the patients experienced a treatment-related adverse event such as a burning sensation. The results of the study demonstrate that Tegaderm™ Matrix along with treatment of underlying causes is a well tolerated wound dressing promoting wound size reduction up to healing for the majority of patients with previously therapy-refractory chronic wounds.

Stacie (2011) in United States conducted a study to compare 3 different dressings with respect to effect on bleeding, discomfort voiced by patients, and ease of groin assessment in patients after percutaneous transluminal coronary angiography. A total of 100 patients were randomly assigned to 1 of 3 groups: pressure dressing, transparent film dressing, or adhesive bandage. Outcome variables were bleeding, patient discomfort, and nurse-reported ease of observation of the groin site. Results no bleeding occurred in patients with transparent film dressings or adhesive bandages. Patients rated these dressings significantly higher than they rated the pressure dressing. Because two-thirds of the sample had previously undergone percutaneous transluminal coronary angiography, they could compare their experience with the new dressing with previous experiences with pressure dressings. Nurses rated the ease of assessing the groin significantly higher for the transparent film and adhesive bandage dressings than for pressure dressings. As a result of this study, a practice change was made hospital-wide: rather than a standard opaque pressure dressing, a transparent film dressing is used for all patients after removal of a femoral sheath.

Haskell (2008) a study was performed on Allergic contact dermatitis from dodecyl maleamic acid in Curad adhesive plastic bandages Two patients, who developed eczematous eruptions beneath Curad-brand medical adhesive plastic bandages, were found to have allergic contact dermatitis to N-dodecyl maleamic acid. N-dodecyl maleamic acid is a monomer used in the production of the adhesive in Curad bandages. Our patients were also sensitive to several closely related chemical compounds. We discuss the chemical requisite for allergenicity of these compounds. These are the first documented cases of allergic contact dermatitis from dodecyl maleamic acid.

Boonbaichaiyapruck (2001) stated in their article that Post cardiac catheterization puncture site care is usually done with a tight pressure dressing by an elastic adhesive bandage Tensoplast due to the belief that it should prevent bleeding. The practice is uncomfortable to the patients. The authors compared a new way of dressing using light transparent tape Tegaderm to the conventional tight pressure one. 126 post coronary angiography patients were randomized to have their groins dressed either with Tensoplast or with Tegaderm. Patients ambulated 8 hours after the procedures. The groin was evaluated for pain, discomfort and bleeding complications. 49 per cent in the Tensoplast vs 26.9 per cent in the Tegaderm group experienced pain p value of 0.01. 55.5 per cent in the Tensoplast group vs 11.1 per cent in the Tegaderm group reported discomfort. 4.7 per cent in the Tensoplast vs 1.6 per cent in the Tegaderm group developed bleeding or hematoma. Dressing of the puncture site after cardiac catheterization with Tegaderm was more comfortable than the conventional Tensoplast without any difference in bleeding complications.

Madeo (1998) studied the purpose of this trial was to prepare for a large randomized trial comparing Arglaes film dressing, a recent innovation containing silver ions, against Tegaderm, a transparent polyurethane dressing. Thirty-one patients admitted to the intensive care unit and requiring the insertion of an arterial line or central venous catheter were recruited into the study. Skin swabs were taken from the insertion sites prior to catheterization and on removal of the intravascular device to measure skin colonization rate between the two dressings. The catheter tips were also cultured on removal to establish if there was a difference between the two groups. No statistical differences were found in bacterial growth between the two dressings.

Randomised controlled trial was conducted Tripepi-Bova (1998) in united states to Compared with gauze dressings, can transparent polyurethane dressings TPDs reduce patient dislodgment of peripheral intravenous IV catheters, phlebitis, and insertion site infiltration. 108 patients were allocated to TPDs Smith and 121 were allocated to gauze dressings 5 x 5 cm Johnson and Johnson Texas. Fewer patients who had TPDs dislodged the IV catheter compared with patients who had gauze dressings $p< 0.05$. Rates of phlebitis and infiltration did not differ, although there was a trend toward a lower frequency of phlebitis and infiltration in patients assigned to TPDs. They found that transparent polyurethane dressings on peripheral IV sites resulted in fewer catheter dislodgments by patients than did gauze dressings. Non-significant trends for lower rates of phlebitis and IV site infiltration were found for patients who had transparent polyurethane dressings.

Meylan (1987) performed a study on that while transparent polyurethane dressings are increasingly used for the care of intravenous catheters, concern has recently been expressed regarding their microbiological safety. We have therefore compared the rate of intravenous catheter bacterial colonization after randomly assigning intensive care patients to transparent polyurethane n = 21 or dry gauze n = 20 dressings. Polyvinyl chloride catheters were inserted and maintained by the nurses. No antiseptic or antibiotic ointment was used. The two groups of patients were similar regarding risk factors for catheter colonization. Colonization rate was 48% 10/21 among patients with transparent dressings versus 10% 2/20 among patients with dry gauze dressings $p = 0.008$. Colonizing bacterial species were Staphylococcus epidermidis 11 strains and S. aureus 1 strain. No catheter-related bacteremia was observed. These data suggest that the colonization rate of

intravenous catheters is increased by the use of polyurethane dressings, possibly increasing the risk of septic phlebitis and bacteremia.

Andersen (1986) study was conducted to comparative study of 'Op-site' and 'Nobecutan-gauze' dressings for central venous lines was performed. Seventy-seven long ante brachial and 68 infraclavicular subclavian catheters were studied. A statistically significant reduction in the incidence of positive cultures from the catheter tip and from the skin puncture site was found with the 'Nobecutan-gauze' dressing. They found that no difference in the incidence of catheter-related septicaemia was found. The theoretical advantage of being able to observe signs of inflammation when 'Op-site' was used did not reduce the incidence of local infection at the skin puncture site. In conclusion we found that a 'Nobecutan-gauze' dressing was a satisfactory alternative to an 'Op-site' dressing.

A randomized, prospective, controlled trial study was conducted by Littenberg in united states to describe the three different dressings for peripheral intravenous catheters in 301 acutely ill medical inpatients. Catheters were dressed with dry clean gauze or one of two brands of transparent plastic. The gauze dressings remained in place significantly longer 47 hours median than either Uniflex 39 hours of Tegaderm 32 hours transparent plastic dressings $p = 0.026$. Catheters were removed for complications inflammation, mechanical failure, or infiltration in 35% of the gauze group, compared with 58% of the Uniflex group and 48% of the Tegaderm group $p = 0.015$. Not only were inflamed venipuncture sites seen less often with gauze, inflammation occurred later $p = 0.002$ and with lesser severity. Dry gauze dressings resulted in longer catheter life, lower

complication rates, and less expense than transparent plastic dressings for peripheral intravenous catheters.

Conly stated in their article that Patients having central venous catheters for three or more days were prospectively randomized to receive a transparent n = 58 or gauze n = 57 dressing to compare the incidence of insertion site colonization, local catheter-related infection, and catheter-related sepsis. Quantitative cultures of the catheter insertion site 25 cm2 revealed significantly greater colonization P less than or equal to .009after 48 hrs in the transparent versus the gauze dressing group. Local catheter-related infection occurred significantly more often P = .002 in the transparent 62% than in the gauze group 24%. Seven episodes of catheter-related bacteremia occurred in the transparent group 16.6% and none in the gauze group P = .015. Stepwise logistic regression analysis revealed that cutaneous colonization at the insertion site of greater than or equal to 10(3) cfu/mL relative risk, 13.16 and difficulty of insertion relative risk, 5.39 were significant factors for catheter-related infection. These data suggest that transparent dressings are associated with significantly increased rates of insertion site colonization, local catheter-related infection, and systemic catheter-related sepsis in patients with long-term central venous catheters.

Summary

This chapter has dealt with review of literature related to the problem stated. The literatures presented here were extracted from Mediscape, Medline and Journal of Indian pediatrics. It includes fifteen primary sources and ten secondary sources. It has helped the researcher to understand the impact of problem under study. It has also enabled the investigator to design the study, develop the tool, and plan the data collection procedure and to analyze the data.

CHAPTER III

RESEARCH METHODOLOGY

The methodology of the research study is defined as the way the data are gathered in order to answer a question to analyse the research problem. It enables the researcher to project a blue print for the research undertaken. The research methodology involves a systematic procedure by which the researcher had a start from the initial identification of the problem to its final conclusion (polit and Beck, 2008).

The present study is conducted to assess the effectiveness of tegaderm versus dynaplaster upon pain perception and prevalence of infection during removal among children. This chapter deals with a brief description of different steps undertaken by the researcher for the study. It involves research approach, research design, setting population, sample and sampling technique, sampling criteria selection and development of the instruments, validity and reliability of the instruments, pilot study, data collection procedure and plan for data analysis.

Research Approach

Research approach is the most significant part of the research. The appropriate choice of research approach depends upon the purpose of research study which is undertaken. According to Polit and Beck (2008) evaluation research is an extremely applied from of research and involves finding out how well a program and practice of policy are working. It goals are to assess or evaluate the success of program. In this study the researcher compared the effectiveness between tegaderm versus dynaplaster upon pain perception among

children. After review of literature the researcher found that comparative approach will be considered as the most appropriate approach for the study. In this study, the investigator assessed the pain while removing on dynaplaster and after implementing tegaderm found the effectiveness by using experimental research design.

Research Design

The overall plan for addressing a research question, including specification for enhancing study's integrity is called as research design. A research design incorporates the most important methodological design that the researcher works in conducting a research (polit and Beck 2008).

Evaluative research design was adopted for conducting this study. It fulfils the criteria such as manipulation, control and randomization. A Post test only design was adopted for conducting this study.

X1 : 01

X2 : 02

X1 : Removal of Tegaderm

X2 : Removal of Dynplaster

01 : Pain perception and occurrence of infection in children with Tegaderm.

02 : Pain perception and occurrence of infection in children with Dynaplaster.

Variables

Independent variable

The variable that is believed to cause or influence the dependent variable is the independent variable (Polit and Beck, 2008).In this study, the independent

variable is pain perception and occurrence of infection among children undergoing intravenous securement.

Dependent variable

The variable hypothesized to depend on or be caused by another variable is the dependent variable. In this study tegaderm and dynaplaster are considered as dependent variable.

Attribute variable

The variables that describe study sample characteristics are termed as attribute variables (Polit and Beck, 2008).In this study attribute variables are demographic variables of the children and clinical variables of children

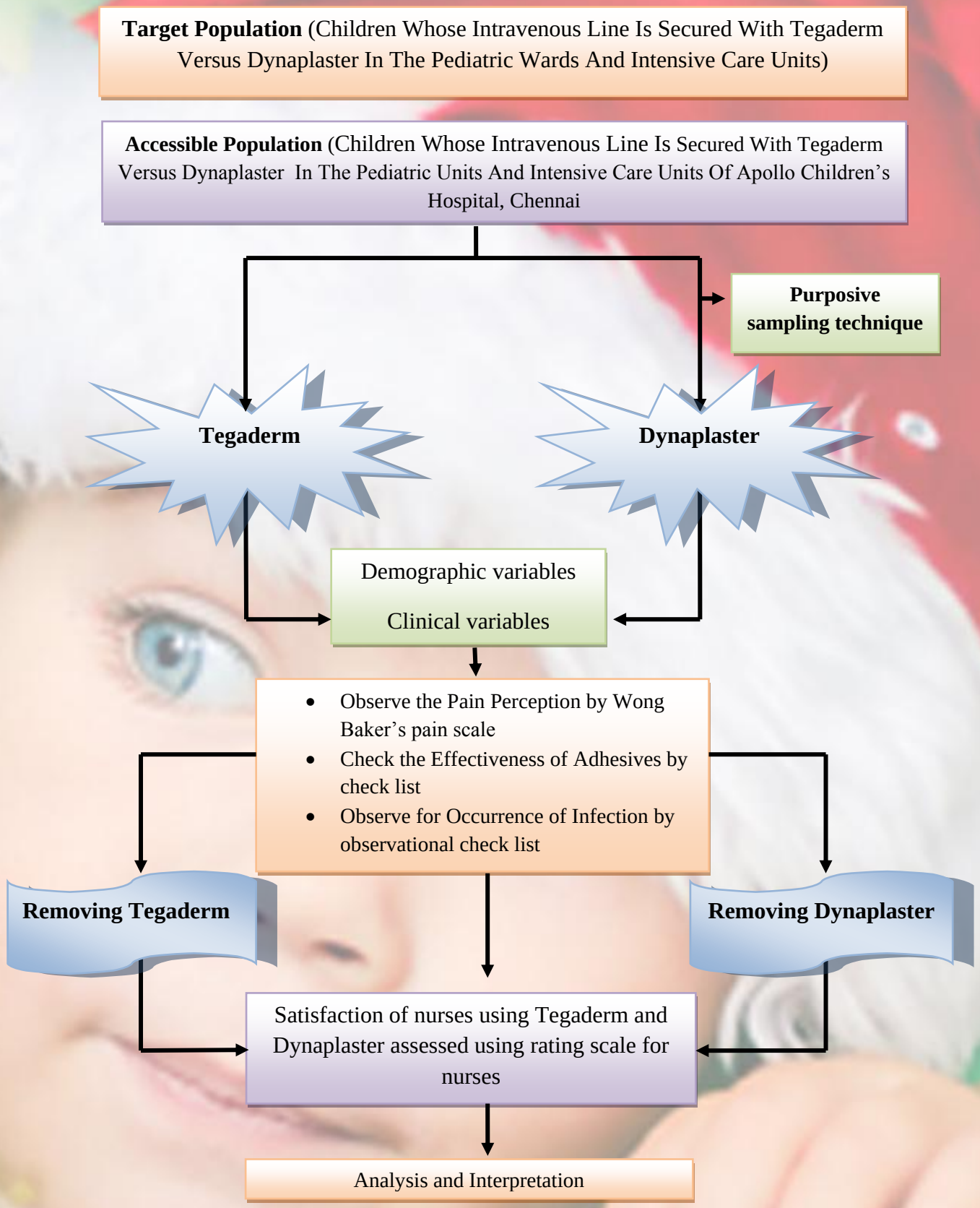

Fig:2 Schematic Representation of the Research Design

Research Setting

Settings are the most specific places where data collection will occur (Polit & Beck, 2008).The present study was conducted at Apollo Children's Hospitals. Apollo Children's Hospital is an 80 bedded hospital under the administration of Apollo Hospitals situated in Chennai. It is a multispecialty tertiary centre for paediatrics with facilities like neonatal intensive care unit(NICU),pediatric intensive care unit(PICU),Cardio thoracic intensive care unit (CTICU),pediatric emergency services and subspecialties and is equipped with high frequency oscillation ventilator, 3D Echo Doppler, computed tomography and magnetic resonance imaging. The researcher collected data from sunshine ward, deluxe ward ,CTICU.

Population

Population is the entire aggregation of cases which meets designed set of criteria (Polit and Beck, 2008).

Target population is the group of population that the researcher aims to study and to whom the study findings will be generalized. In this study target population comprises of all children with intravenous line secured with the tegaderm versus dynaplaster.

Accessible population is the population that the researcher finds in the study area. The accessible population in this study were children with intravenous line secured with tegaderm and dynaplaster in pediatric cardiac intensive care unit pediatric general wards and deluxe ward at Apollo Children's Hospitals ,Chennai.

Sample

A sample consists the subset of the units which comprises the population (polit and Beck, 2004). A sample of 30 children whose intravenous line is secured with tegaderm and 30 children whose intravenous line secured with dynaplaster.

Sampling Technique

Sampling is the process of selecting portion of the population to represent the entire population (Polit & Beck, 2008). The subjects of the study were selected by purposive sampling. 30 children were assigned to tegaderm group and 30 children were assigned to dynaplaster group.

Sampling Criteria

Inclusion criteria

- Children aged from one year to twelve years.
- Children with tegaderm and dynaplaster used for securing the intravenous line.
- Caregivers' who are willing to participate in the study.
- Children who were admitted in Apollo Children's Hospital

Exclusion criteria

- Children who have intravenous line secured with other adhesives.
- Children less than one year.
- Children who are critically ill.
- Nurses who are not willing to participate in the study

Selection and Development of the Study Instruments

As the study aimed to evaluate the effectiveness tegaderm and dynaplaster for children underwent intravenous line securement. The data collection instruments were developed through an extensive review of literature and in consultation with opinion of experts and opinion of faculty members. The instruments used in this study are demographic variable proforma, clinical variable proforma, effectiveness check list, infection checklist ,Wong bakers pain scale and nurse's satisfaction rating scale.

Demographic variable proforma for children

Demographic variables for children includes age, gender, type of family, and area of residence, family monthly income, and educational status of the children.

Clinical variable proforma for children

This proforma includes clinical variables like age at diagnosis, co-morbid illness, diagnosis, indications of intravenous line, type of intravenous line, site of intravenous line, type of adhesive material, number of days of tegaderm/dynaplaster, number of days of intravenous line, any intravenous complication.

Wong Bakers Faces Pain rating scale

Wong Baker Faces pain rating scale is a subjective pain rating scale developed by Wong and Baker (1988).It consists of six cartoon faces ranging from smiling face for "no pain" to tearful for "worst pain" .It can be used for

children as young as 3 years. The FACES provide three scales in one: facial expression, numbers, and words. The score ranging from 0 – no pain,2-hurts little bit,4 – hurts little more,6 – hurts even more,8 – hurts whole lot,10 – hurts worst. The score interpretation is mentioned below

0	No pain
2	Mild pain
4 & 6	Moderate pain
8 & 10	Severe pain

Observational check list to the assess presence of infection

Infection checklist was developed by the investigator which includes observations like presence of fever, urticaria, pain at the site of cannula insertion, redness etc. It included 8 statements and it is of yes or no type. The scoring was 1 for yes and 0 for no infection

Score	**Percentage**	**Level of infection**
<4	<50	No infection
5 – 8	50 – 100	Infection

Observational check list on effectiveness of dynaplaster versus tegaderm

Effectiveness of intervention check list was developed by the investigator. It included 10 statements. The scoring was 3 for effective, 2 for moderately effective and '1' for ineffective.

Score	**Percentage**	**Interpretation**
< 10	<33	Ineffective
11 – 20	34 – 66	Moderately effective
21 – 30	67 – 100	Effective

Rating scale on level of satisfaction of nurse

A four point rating scale was developed by the investigator, it is a self administered. It assesses the level of nurse's satisfaction regarding tegaderm and dynaplaster. It consists of 10 statements. The total score is 100

Score	Percentage	Interpretation
<10	<25	Dissatisfied
11-20	26 -50	Satisfied
21-30	51 -75	Moderately satisfied
31-40	76 -100	Highly satisfied

Psychometric Properties

Validity of study instruments

Content validity refers to the adequacy of the sampling of the domain being studied. The content validity of the tool was obtained by getting opinion from six experts in the field of pediatrics. Two of the experts were doctors and four were nursing experts including nurse educator in clinical field. The validation has suggested some specific modifications in the tools and rating scale. The modifications and suggestions of experts were incorporated in the final preparation of the tool.

Reliability of the instruments

Reliability is the degree of consistency with which an instrument measures the attribute it intended to measure (polit &Beck, 2008), the reliability

of the tools was determined by using split half method and interrater technique.karl Pearson's r was computed for finding out the reliability.

Occurrence of Infection checklist	Inter rate technique (r=0.88)
Effectivenesscheck list for	
Tegaderm versus dynaplaster	Split half method(r=0.94)
Rating scale for level of satisfaction	Split half method(r=0.84)

Pilot Study

According to Polit and Beck. (2009), a polit study is a miniature or some part of the actual study, in which the instrument are administered to the subjects drawn from the population. it is a small scale version or trail run, done in preparation for the major study. The purpose is to find out the feasibility to conduct main study.

Pilot study was conducted with six children who had intravenous line securement with tegaderm and dynaplaster in Apollo children's hospital, Chennai. The observation checklist for infection and effectiveness, rating scale, and pain scale administered was found to be feasible.

Protection of Human Rights

The researcher presented the proposal to the ethical committee of Apollo hospitals and got clearance to conduct the study. The researcher obtained permission to conduct the study from principal and HOD, Pediatric nursing department of Apollo college of nursing. Informed consent was obtained from the

participants before collecting the data. Confidentiality of the participants was maintained throughout the study.

Data Collection Procedure

Data collection is the precise, systematic gathering of information relevant to the research purpose. (Polit and Beck) The researcher presented the proposal to the ethical committee Apollo hospitals and got ethical clearance to precede the study. The investigator collected the data from Apollo children's hospitals after obtaining proper administrative permission from concerned authorities. The observation time schedule was from7.30 am to 12 noon and 12.30p.m to 3pm and the data collection period was from May 15th to June15th 2013.

A group of 60 children with intravenous line were selected by purposive sampling method and consent was obtained from the parents. 30 children on dynaplaster and 30 children tegaderm were selected. The baseline data was collected like demographic variable and clinical variable was collected by interview.

Pain perception assessment was done during removal of dynaplaster tegaderm by using Wong–Bakers pain Scale, the effectiveness of tegaderm and dynaplaster was checked by using observation check list, to assess presence of infection during removal by using infection check list. The observation was done for 3 consecutive days for each child. Then the level of satisfaction on removal of tegaderm and dynaplaster was assessed among staff nurses.

Problems Faced During Data Collection

The problems faced during the data collection were,

- Lack of time for nurses to participate in the study.
- Unwillingness of some parents to participate
- Some parents were asking too many questions

Plan for Data Analysis

Data analysis is the systematic organization, synthesis of research data and testing of null hypothesis by using the obtained data (Polit and beck, 2004). Analysis and interpretation were carried out using descriptive and inferential statistics. Like mean standard deviation, Independent ‘t’ test and chi-square.

Summary

This chapter dealt with selection of research approach, research design, setting, population, sample, sampling technique, sampling criteria, selection and development of study instruments, validity, reliability of the study pilot study, data collection procedure, problems faced during data collection and plan for data analysis.

CHAPTER IV

ANALYSIS AND INTERPRETATION

Data analysis is conducted to reduce, organize and give meaning to the data. The results obtained from data analysis require interpretation to be meaningful. Interpretation of data involves examining the results from data analysis forming conclusions, considering the implications for nursing, exploring the significance of the findings and suggesting further studies (Burns and Groove, 2007).

This chapter deals with analysis and interpretation of data collected on a number of issues from various sources. Statistics is a field of study concerned with techniques or methods of data collection, classification, summarizing, and interpretation, drawing inferences, testing of hypothesis and making recommendations (Mahajan, 2004). Data was collected from 60 children underwent securing IV line plaster at Apollo Children's Hospital, Chennai, among them 30 were in tegaderm and 30 in dynaplaster to determine the effectiveness of tegaderm/dynaplaster while removing both plaster. The data were analyzed according to the objectives and hypothesis of the study. Analysis of the data was compiled after all the data was transferred to master coding sheet. The data were analyzed, tabulated and interpreted using appropriate descriptive and inferential statistics.

Organization of the Findings

The findings of the study were organized and presented under the following headings:

- Frequency and percentage distribution of demographic variables of children using tegaderm versus dynaplaster.
- Frequency and percentage distribution of clinical variables of children using tegaderm versus dynaplaster.
- Frequency and percentage distribution of pain perception and occurrence infection among children using tegaderm versus dynaplaster.
- Frequency and percentage distribution of effectiveness of tegaderm versus dynaplaster among children**.**
- Frequency and percentage distribution of level of satisfaction of nurses using tegaderm versus dynaplaster.
- Comparison of mean and standard deviation of pain perception and occurrence of infection during removal of tegaderm versus dynaplaster children.
- Comparison of mean and standard deviation of effectiveness of tegaderm versus dynaplaster among children.
- Association between selected demographic variables and pain perception of children using tegaderm versus dynaplaster using wong bakers faces pain rating scale.
- Association between selected clinical variables and pain perception of children using tegaderm versus dynaplaster.
- Association between selected demographic variables and occurrence of infection of children using tegaderm versus using infection check list

- Association between selected clinical variables and occurrence of infection of children using tegaderm versus dynaplaster.
- Association between selected demographic variables and effectiveness of tegaderm versus dynaplaster among children.
- Association between selected clinical variables and effectiveness of tegaderm versus dynaplaster among children.

Table. 1

Frequency and Percentage Distribution of Demographic Variables of Children using Tegaderm versus Dynaplaster

(N=60)

Demographic variables	Tegaderm (n=30)		Dynaplaster (n=30)	
	N	**P**	**N**	**P**
Age of the child				
1 -3 years	15	50%	8	26%
4-6 years	4	13%	1	17%
7-9 years	6	20%	2	10%
10-12 years	5	17%	3	47%
Gender of the child				
Male	15	50%	18	60 %
Female	15	50%	12	40%
Type of family				
Nuclear	16	53%	10	33%
Joint	14	47%	20	67%
Area of residence				
Urban	17	57%	17	57%
Rural	10	33%	10	33%
Suburban	3	10%	3	10%

The above table reveals that most of the children are aged 1-3yrs (50%, 26%). Significant percentage of children are males (50%, 60%), from nuclear family (53%,33%) among children using tegaderm versus dynaplaster.

Fig.3 depicts that most of their family monthly income is 21000-39000 (40%,30%) in both tegaderm versus dynaplaster children.

Fig.4 shows that majority of the children were in primary school (47%, 67%)

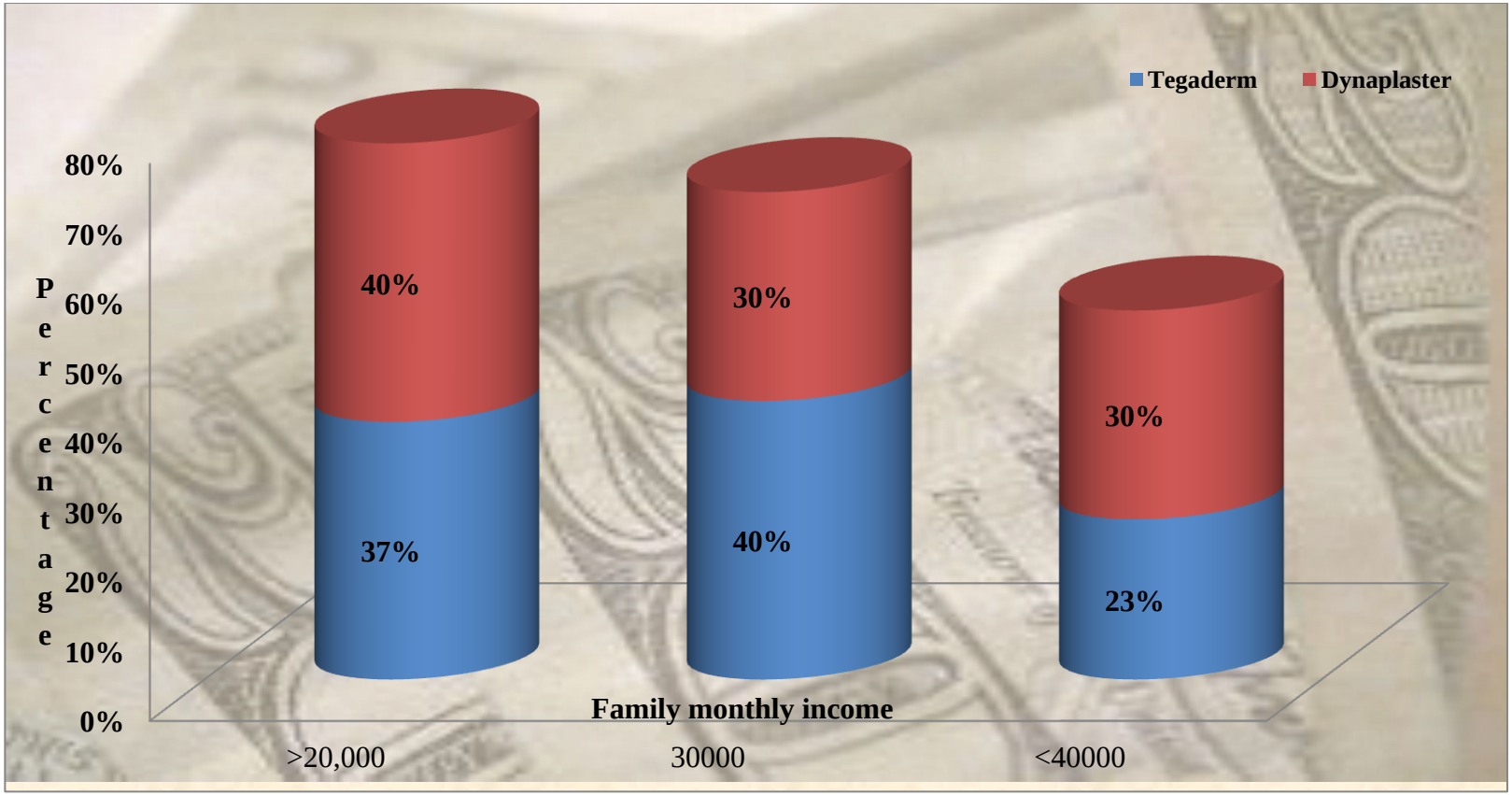

Fig : 3 Frequency and Percentage Distribution of family monthly income of children in Tegaderm versus Dynaplaster

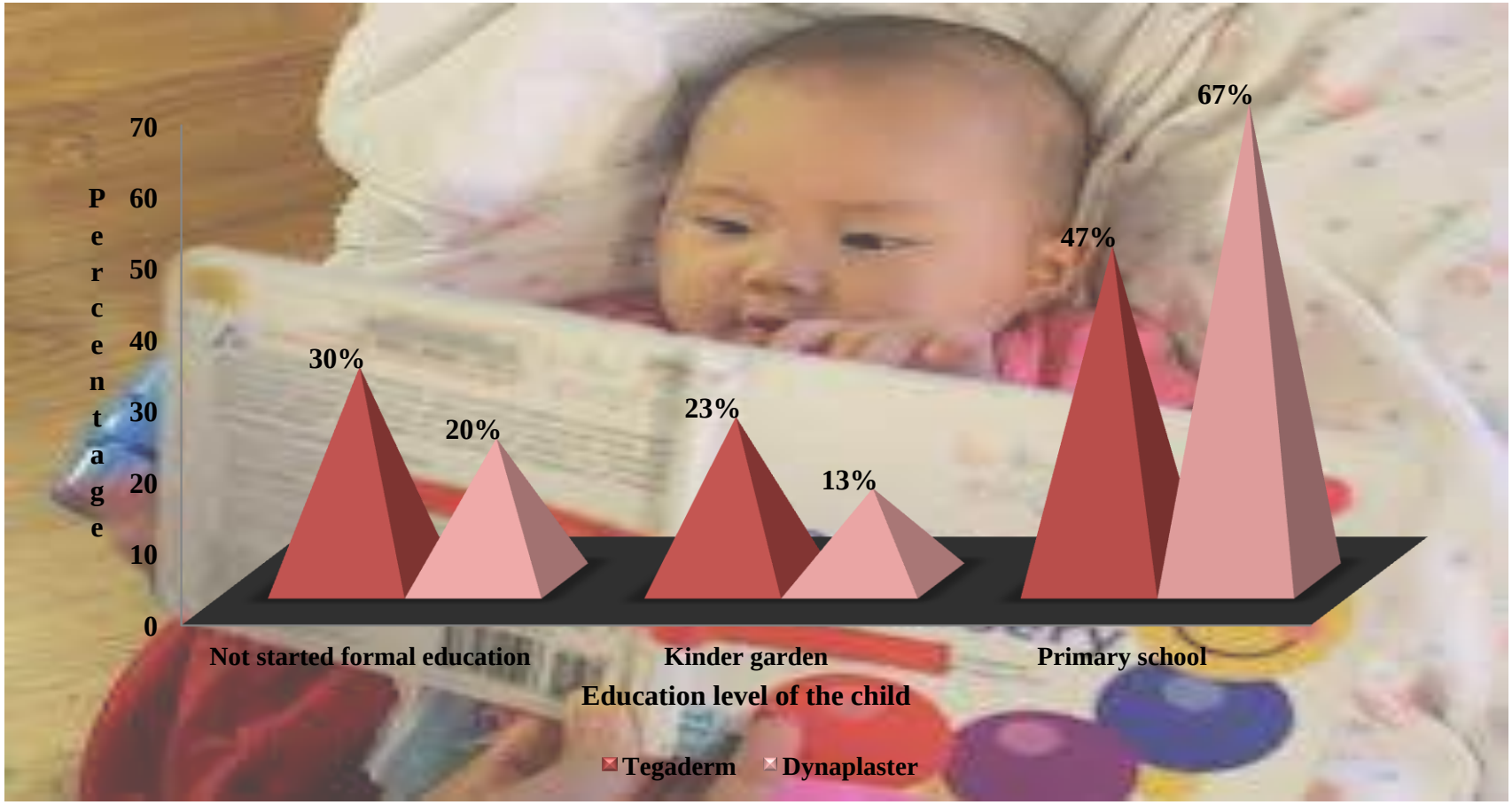

Fig: 4 Frequency and Percentage Distribution educational level of children in Tegaderm versus Dynaplaster

Table. 2

Frequency and Percentage Distribution of Clinical Variables of Children using Tegaderm Versus Dynaplaster

(N=60)

Clinical Variables	Tegaderm (n=30)		Dynaplaster (n=30)	
	N	P	N	P
Age of the child when diagnosed…..years				
1 – 3	14	47%	8	27%
4 – 6	4	13%	6	20%
7 – 9	6	23%	3	10%
10 -12	5	17%	13	43%
Co-morbid illness				
Present	1	3	2	7%
Absent	29	97%	28	93%
If present specify.....	-	-	-	-
Types of IV line				
Peripheral line	24	80%	28	93%
Central vein	6	20%	2	7%
Types of adhesive material used				
Tegaderm	30	100%	-	-
Dynaplaster	-	-	30	100%
Micro pore	-	-	-	-
Durapore	-	-	-	-
Number of days tegaderm/dynaplaster in situ				
1 -3 days	14	47%	19	83.3%
3 -5 days	10	33.3%	8	16.7%
5-7 days	6	20%	3	10%

The above table reveals that majority of the children with tegaderm and dynaplaster had no co morbid illness(97%,93%),significant percentage of children had peripheral line (80%,93%). Most of the children were intravenous line dependent for more than three days (47%,63%) and secured with tegaderm and dynaplaster (47%,83,3%).

Fig. 5 depicts that most of the children fall into the children fall into the category of any other diseases like surgical illness

Fig .6 shows that majority of the children received medications

Fig. 7 infers that most of the children were in bracheocephalic vein

Fig .8 shows that most of them were in intravenous line for 1-3 days

Fig. 9shows that majority of the children had complication in dynaplaster

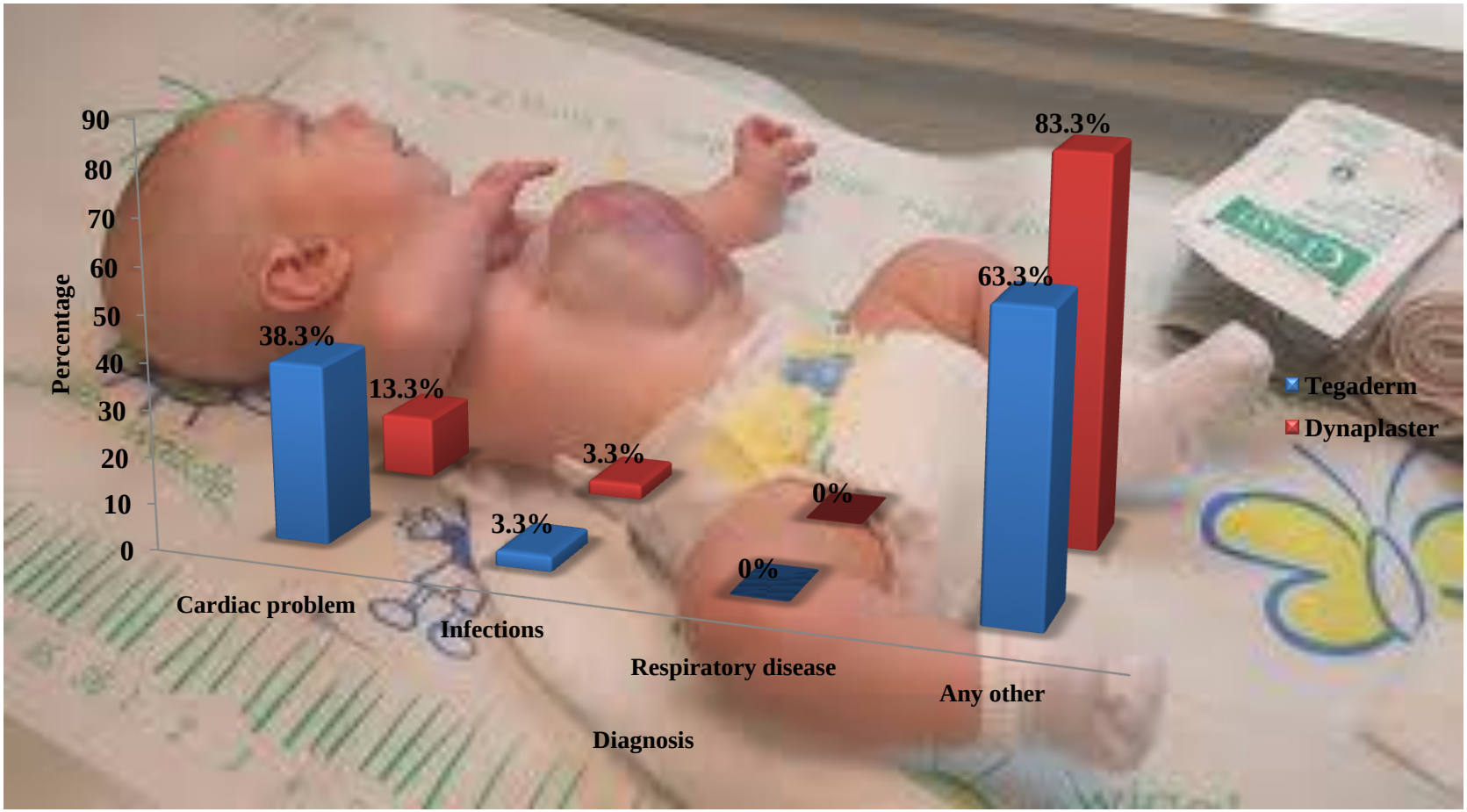

Fig.5 Frequency and Percentage Distribution of Diagnosis of Children

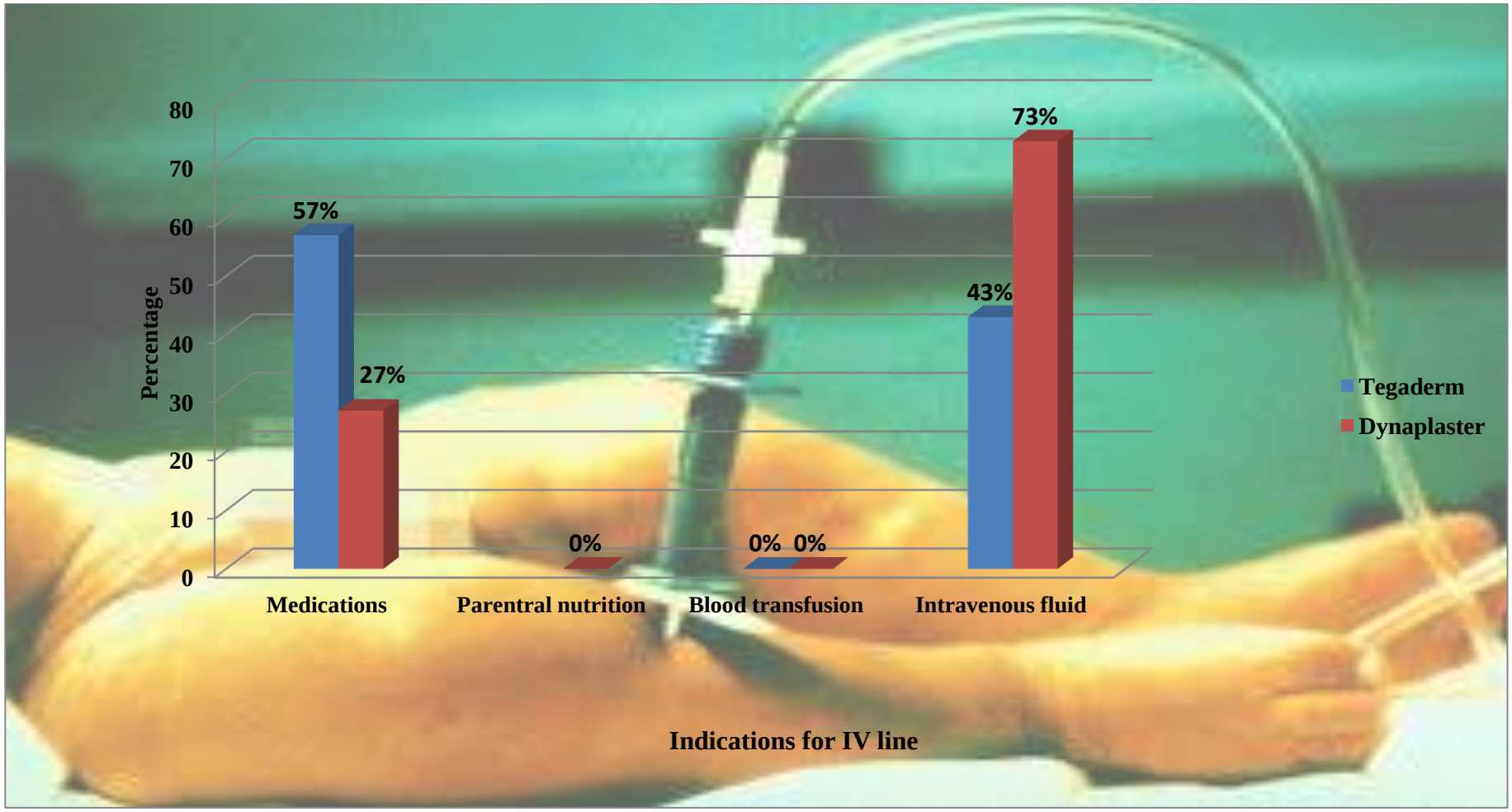

Fig.6 Frequency and Percentage Distribution of indication for Intravenous line of Children

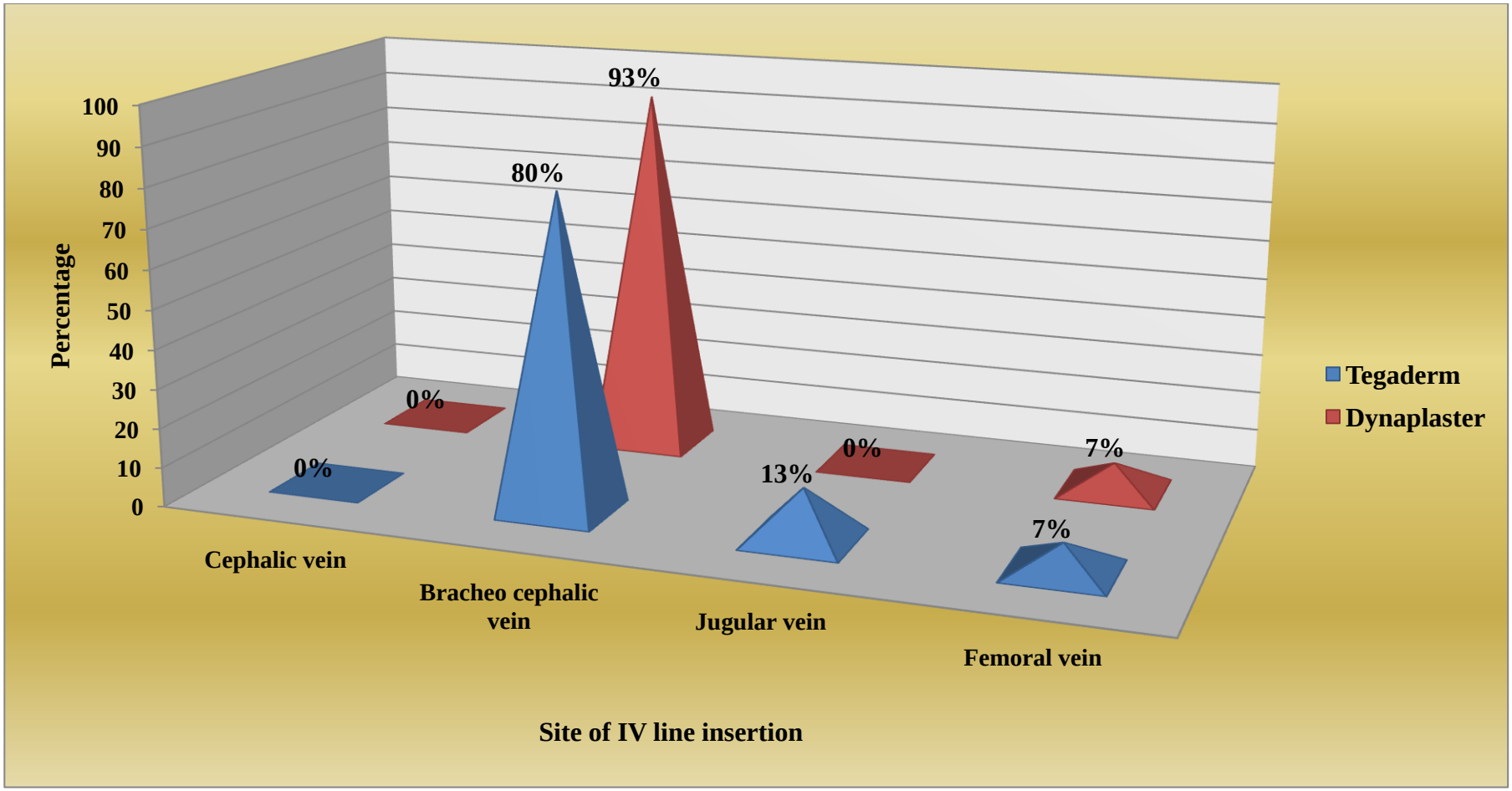

Fig:7 Frequency and Percentage Distribution of site of IV line Insertion of Children

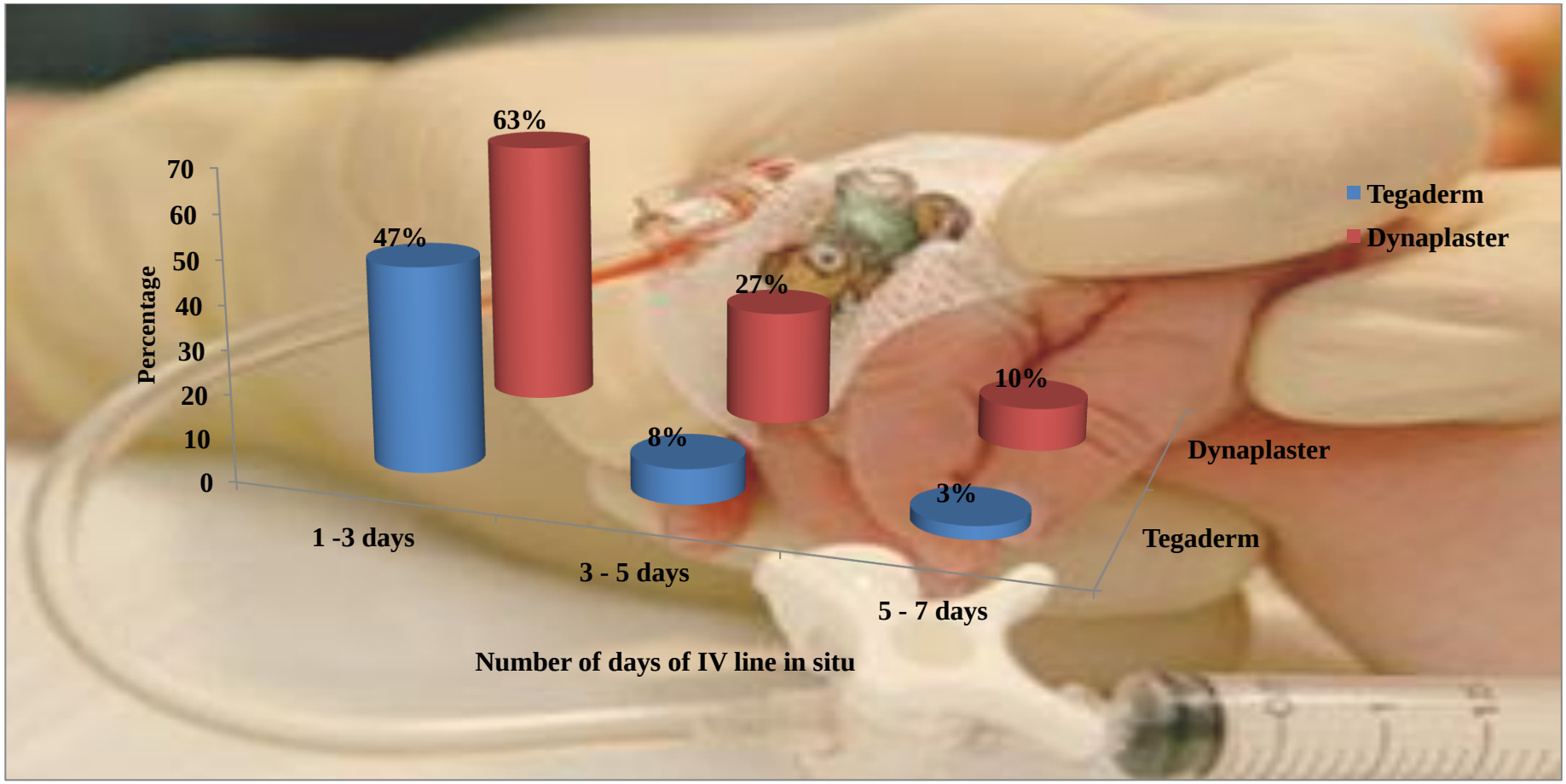

Fig. 8 Frequency and Percentage Distribution of Intra Venous Line in Situ of Children

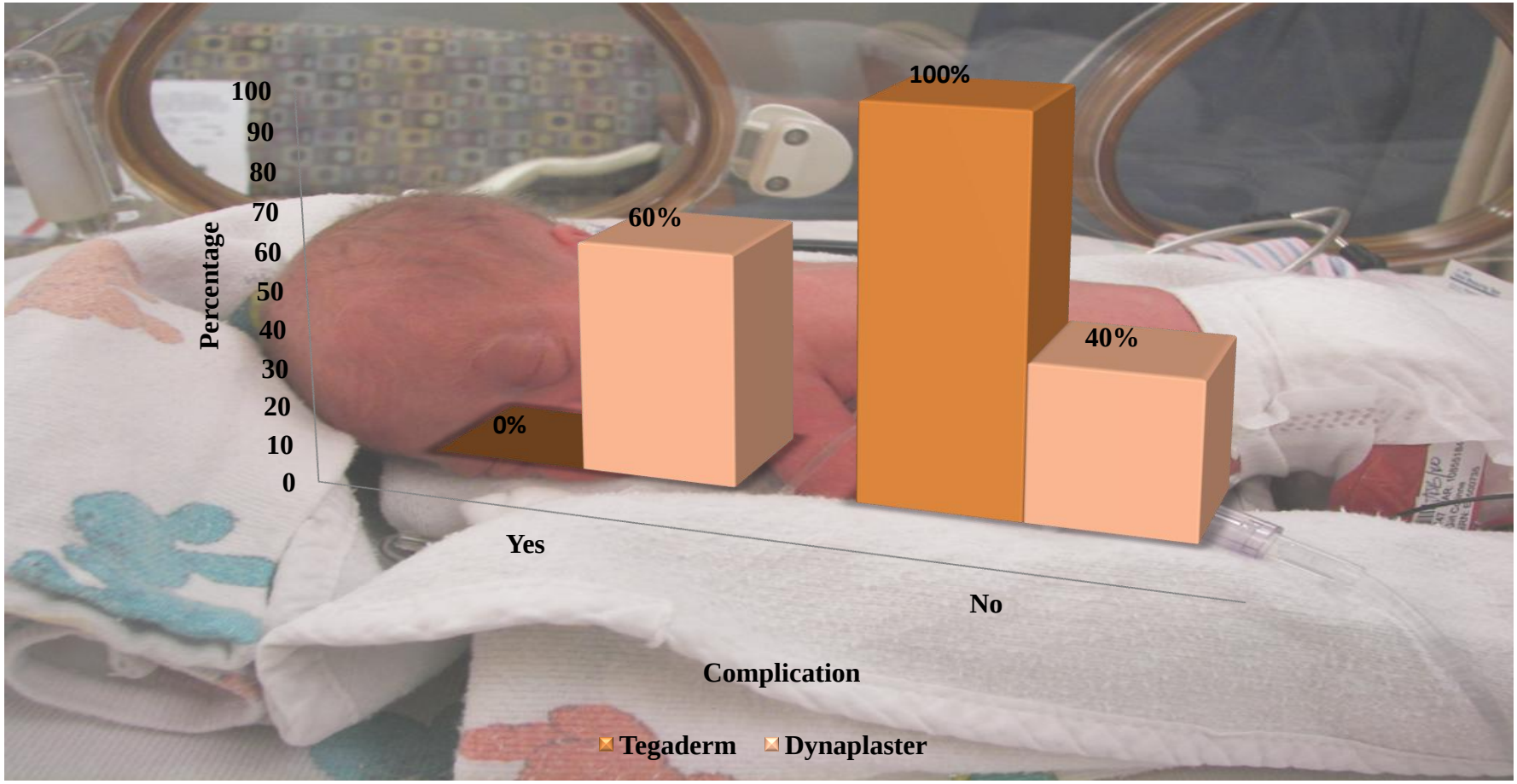

Fig .9 Frequency and Percentage Distribution of Occurrence of Complications in Children

Table. 3

Frequency and Percentage Distribution of Pain perception and Occurrence of Infection among Children using Tegaderm Versus Dynaplaster

Level of infection	Tegaderm (n=30)		Dynaplaster (n =30)	
	N	P	N	P
No infection	24	80%	17	57%
Infection	6	20%	13	43%

This table infers that majority of children with tegaderm had no infection during presence (63.3%,80%) and majority of children with dynaplaster had infection during presence (75%,43%).

Fig10: depicts that most of the children had no pain in tegaderm and severe pain in dynaplaster.

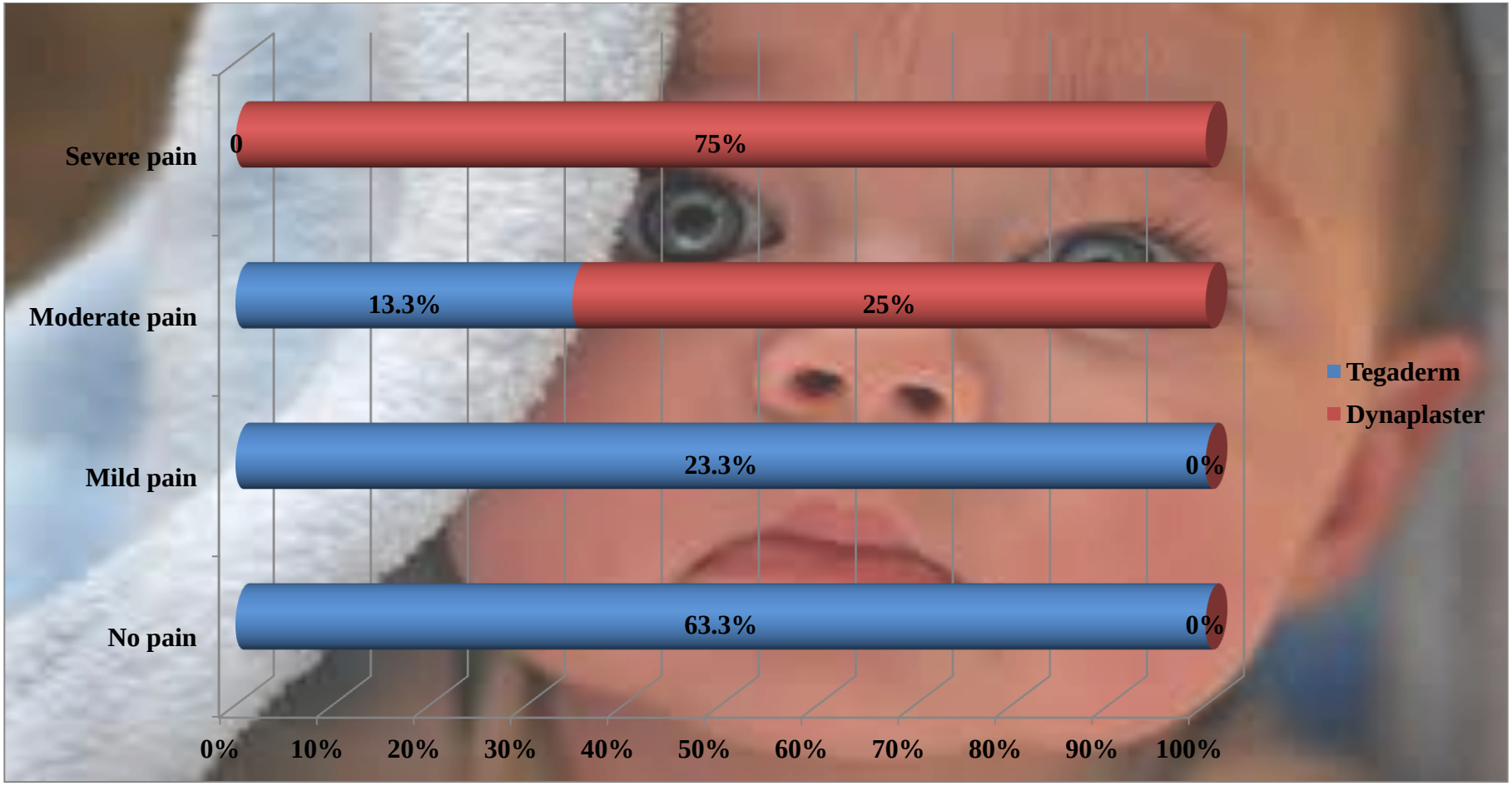

Fig:10 Frequency and Percentage Distribution of Pain Perception in Children

Table .4

Frequency and Percentage Distribution of Effectiveness of Tegaderm Versus Dynaplaster among Children.

Effectiveness of Tegaderm versus Dynaplaster	Tegaderm(n=30)		Dynaplaster (n =30)	
	N	P	N	P
Effective	27	90%	8	27%
Moderately effective	3	10%	10	33%
In effective	-	-	12	40%

The above table infers that majority of the children using tegaderm had effective out come with tegaderm (90%) and (27%) had effective out come with dynaplaster.

Table .5

Frequency and Percentage Distribution of Level of Satisfaction of Nurses using Tegaderm Versus Dynaplaster

Level of satisfaction	Tegaderm(n=30)		Dynaplaster (n =30)	
	N	P	N	P
Highly satisfied	27	90%	-	-
Moderately satisfied	3	10%	22	**73%**
Satisfied	-	-	8	**27%**
Dissatisfied	-	-	-	-

The findings reveals that most of the nurses using tegaderm were highly satisfied (90%), whereas (73%) of nurses using dynaplaster were moderately satisfied.

Table. 6

Comparison of Mean and Standard Deviation of pain perception and occurrence of infection during removal of tegaderm versus dynaplaster children

	Pain Perception		Occurrence of Infection	
	Tegaderm	**Dynaplaster**	**Tegaderm**	**Dynaplaster**
N	**30**	**30**	**30**	**30**
M	**1**	**8.4**	**0.2**	**1**
SD	**0.9**	**2.46**	**0.1**	**0.4**
t value	**23.7*** **		**4.6*** **	

***P<0.001

This table shows that mean and standard deviation with regard to pain perception of children while removing tegaderm was (M-1.06,SD-0.9) and while removing dynaplaster was (M-8.4,SD-2.46).The difference is significant at p<0.05 level. The findings also revealed that the occurrence of infection in children while removing tegaderm was (M-0.2, SD-0.1) and while removing dynaplaster was (M-1, SD-0.4).The difference is significant at p<0.001 level. Hence null hypothesis H_{01} is rejected.

Table. 7

Comparison of Mean and Standard Deviation of Effectiveness of Tegaderm versus Dynaplaster among Children

Group	N	M	SD	t value
Tegaderm	**30**	**26**	**2.7**	**17.8*** **
Dynaplaster	**30**	**17**	**1.2**	

***P<0.001

The mean and standard deviation with regard to effectiveness of tegaderm was (M-26, SD-6.1) and dynaplaster was (M-17,SD-2.6).The difference is significant at p<0.001 level. Hence null hypothesis H_{02} is rejected.

Table .8

Association between Selected Demographic Variables and Pain Perception of Children using Tegaderm and Dynaplaster Using Wong Bakers Faces Pain rating Scale

Demographic variables	Tegaderm Pain perception score		χ^2	Dynaplaster Pain perception score		χ^2
	Up to mean	Above mean		Up to mean	Above mean	
				N	P	
Age of the child						
1 - 6 years	11	8	0.07	13	2	5.25*
7- 12 years	7	4	df=1	7	8	df=1
Gender of the child						
Male	8	7	1.2	13	5	1.5
Female	11	4	df=1	6	6	df=1
Type of the family						
Nuclear	10	7	2.8	4	6	3.9
Joint	9	4	df=1	14	6	df=1
Area of residence						
Urban/Rural	9	8	1.4	8	7	1.0
Sub urban	10	3	df=1	11	4	df=1
Family income per month in rupees						
20001-30000	18	4	12.1***	14	5	0.31
30001-40000	1	7	df=1	7	4	df=1
Educational status of the children						1.75
Not started formal education/kindergarten	6	6	2.1	8	2	df=1
Primary school	14	4	df=1	11	9	

***p<0.001,*p<0.05

The table 8 shows a significant association between selected demographic variables and pain perception with regard to monthly income(χ^2 =12.1,df = 1) among children with tegaderm and in children with dynaplaster it is age of the child (χ^2=5.25,df =1) and type of family(χ^2=3.9,df =1) at p<0.001 p<0.05.Hence null hypothesis H_{03} is rejected.

Table .9

Association between Selected Clinical Variables and Pain Perception of Children using Tegaderm versus Dynaplaster

Clinical variables	Tegaderm Pain perception score		χ^2	Dynaplaster Pain perception score		χ^2
	Up to mean	Above mean		Up to mean	Above mean	
	N	P		N	P	
Age of the child when						
1-6 yrs	12	7	2	13	2	5.25*
7-12 yrs	7	4	df=1	7	8	df=1
Co morbid illness						
Present	1	0	0.05	2	0	0
Absent	23	6	df=1	28	0	df=1
Diagnosis						
Cardiac problem/ infections	9	1	4.3*	2	3	1.49
respiratory problem/ any other	10	10	df=1	17	8	df=1
Indications						
Medications/parental nutrition	13	5	0.6	6	2	0.47
Blood transfusion/intravenous fluid	7	5	df=1	13	9	df=1
Types of iv line						
Peripheral line	13	11	2.12	18	10	2.00
Central line	6	0	df=1	0	2	df=1
Site of IV line insertion						
Cephalicvein/Bracheo cephalic	13	11	2.13	21	7	
vein	6	0	df=1	0	2	4.5
Jugular/femoral vein						df=1
No of days tedagerm/dynaplaster insitu						
1-5 days	14	10	3.75	19	8	4.78*
5-7 days	6	0	df=1	0	3	df=1
No of days IV line insitu						
1-5 days	14	10	3.75	19	8	4.78*
5-7 days	6	0	df=1	0	3	df=1
Is there any intravenous complication noted						
Yes	20	10	o	12	6	0
No	0	0	df=1	8	4	df=1

*p<0.05

Table 9, shows that there is a significant association between selected clinical variables and pain perception of children using tegaderm with regard to diagnosis (χ^2 =4.3,df = 1) and in children with dynaplaster it was with regard to insitu (χ^2=4.78,df =1), site of intravenous line insertion, (χ^2=4.5,df =1) at $p<0.05$. Hence null hypothesis H_{04} is rejected.

Table .10

Association between Selected Demographic Variables and Occurrence of infection of Children using Tegaderm versus Dynapalster Using Infection check list

Demographic variables	Tegaderm Occurrence of infection		χ^2	Dynaplaster Occurrence of infection		χ^2
	Up to mean	Above mean		Up to mean	Above mean	
				N	P	
Age of the child						
1 - 6 years	19	0	0	10	4	2.35
7- 12 years	11	0	df=1	10	6	df=1
Gender of the child						
Male	13	2	0.36	14	4	2.4
Female	11	4	df=1	6	6	df=1
Type of the family						
Nuclear	14	3	0.12	4	6	4.7*
Joint	10	3	df=1	16	4	df=1
Area of residence						
Urban/Rural	23	4	4.39*	17	8	0.19
Sub urban	1	2	df=1	3	2	df=1
Family income per month in rupees						
20001-30000	21	1	0.11	13	8	0.70
30001-40000	8	0	df=1	7	2	df=1
Educational status of the children						
Not started formal education/kindergarten	13	4	0.01	7	4	1.52
Primary school	10	3	df=1	13	6	

*p<0.05

We can infer from the above table that there is a significant association between selected demographic variables and infection among children in tegaderm with regard to area of residence, (χ^2 =4.39,df = 1) and in children with dynaplaster with regard to type of family(χ^2=4.7,df =1) at p<0.05. Hence null hypothesis H_{05} is rejected.

Table .11

Association between Selected Clinical Variables and Occurrence of Infection of Children using Tegaderm versus Dynaplaster

Clinical variables	Tegaderm Occurrence of infection		χ^2	Dynaplaster occurrence of infection		χ^2
	Up to mean	Above mean		Up to mean	Above mean	
	N	P		N	P	
Age of the child when						
1-6 yrs	19	0	0	10	4	2.35
7-12 yrs	11	0	df=1	10	6	df=1
Co morbid illness						
Present	1	0	0.05	2	0	0
Absent	23	6	df=1	28	0	df=1
Diagnosis						
Cardiac problem/ infections	11	0	2.7	2	3	2.0
respiratory problem/ any other	12	7	df=1	18	7	df=1
Indications						
Medications/parental nutrition	10	4	2.3	5	3	0.09
Blood transfusion/intravenous fluid	15	1	df=1	15	7	df=1
Types of iv line						
Peripheral line	18	3	2.2	19	9	0.39
Central line	6	3	df=1	1	1	df=1
Site of IV line insertion						
Cephalic vein / Bracheo cephalic vein	18	6	0.17 df=1	19	9	0.39 df=1
Jugular/femoral vein	4	2		1	1	
No of days tegaderm /dynaplaster insitu						
1-5 days	23	4	4.39*	23	4	4.39*
5-7 days	1	2	df=1	1	2	df=1
No of days IV line insitu						
1-5 days	23	4	4.39*	23	4	4.39*
5-7 days	1	2	df=1	1	2	df=1
Is there any intravenous complication noted						0.9
Yes	0	0	0	7	12	df=1
No	24	6		6	5	

* $p<0.05$

The above table shows that there is a significant association between selected clinical variables and occurrence of infection among children with tegaderm and dynaplaster with regard to number of days of intravenous line insitu, ($\chi 2 = 4.39$, df = 1) at $p<0.05$. Hence null hypothesis H_{06} is rejected.

Table .12

Association between Selected Demographic Variables and Effectiveness of Tegaderm Versus Dynaplaster among Children

Demographic variables	Tegaderm Effectiveness score		χ^2	Dynaplaster Effectiveness score		χ^2
	Up to mean	Above mean		Up to mean	Above mean	
	N	P		N	P	
Age of the child						
1 - 6 years	9	9	5.0*	9	4	0.57
7- 12 years	5	7	df=1	11	6	df=1
Gender of the child						
Male	18	7	0.12	11	7	0.22
Female	7	8	df=1	7	5	df=1
Type of the family						
Nuclear	9	7	0.53	4	6	4.78*
Joint	6	8	df=1	6	4	df=1
Area of residence						
Urban/Rural	13	14	0.22	17	10	0.09
Sub urban	1	2	df=1	2	1	df=1
Family income per month in rupees						
20001-30000	10	13	1.3	14	7	0
30001-40000	5	2	df=1	6	3	df=1
Educational status of the children						
Not started formal education/kindergarten	8	8	0.22 df=1	6	4	0 df=1
Primary school	5	8		12	8	

*p<0.05

We can infer that there is a significant association between selected demographic variables and effectiveness of tegaderm with regard to age, (χ^2 =5.0,df = 1) and dynaplaster with regard to type of family (χ^2=4.78,df =1) at p<0.05.Hence null Hypothesis H_{07} is rejected.

Table .13

Association between Selected Clinical Variables and Effectiveness of Tegaderm Versus Dynaplaster among Children

Clinical variables	Tegaderm group Effectiveness score		χ^2	Dynaplaster Effectiveness score		χ^2
	Up to mean	Above mean		Up to mean	Above mean	
	N	P		N	P	
Age of the child when						
1-6 yrs	9	9	0.24	9	4	0.05
7-12 yrs	5	7	df=1	11	6	df=1
Co morbid illness						
Present	0	1	1.62	0	2	2.0
Absent	16	13	df=1	18	10	df=1
Diagnosis						
Cardiac problem/ infections	8	3	4.2*	3	2	0
respiratory problem/ any other	7	12	df=1	15	10	df=1
Indications						
Medications/parental nutrition	6	9	1.2	2	6	5.37*
Blood transfusion/intravenous fluid	9	6	df=1	16	6	df=1
Types of iv line						
Peripheral line	10	14	3.2	17	11	0.08
Central line	5	1	df=1	1	1	df=1
Site of IV line insertion						
Cephalic vein / Bracheo cephalic vein	10	14	3.2	17	11	0.08
Jugular/femoral vein	5	1	df=1	1	1	df=1
No of days Tedagerm/Dynaplaster insitu						
1-5 days	12	13	0.11	17	10	0.88
5-7 days	2	3	df=1	1	2	df=1
No of days IV line insitu						
1-5 days	12	13	0.11	17	10	0.88
5-7 days	2	3	df=1	1	2	df=1
Is there any intravenous complication noted						
Yes	0	0	0	11	8	0.40
No	15	15	df=1	5	6	df=1

*p<0.05

We can infer that there is a significant association between selected clinical variables and effectiveness of tegaderm with regard to diagnosis, (χ^2 =4.2,df = 1) and dynaplaster with regard to indications for intravenous line (χ^2 =5.37,df = 1) at $p<0.05$.Hence the null hypothesis H_{08} is rejected.

Summary

This chapter dealt with analysis and interpretation of the data obtained by researcher. The analysis showed that pain perception and occurrence of infection is reduced in tegaderm and increased in dynaplaster. The level of satisfaction is high in nurses using to removal of tegaderm and moderately satisfied with dynaplaster.

CHAPTER V

DISCUSSION

Statement of the problem

A Comparative Study to Assess the Effectiveness Of Tegaderm Versus Dynaplaster Upon Pain Perception and Occurrence Of Infection During Removal Among Children at Selected Hospitals, Chennai.

Objectives of the Study

1. To assess the level of pain perception and occurrence of infection during removal of tegaderm versus dynaplaster among children.
2. To compare the effectiveness of tegaderm versus dynaplaster upon pain perception and occurrence of infection among children.
3. To determine the effectiveness of tegaderm versus dynaplaster among children
4. To determine the association between selected demographic variables versus pain perception during removal of tegaderm versus dynaplaster among children.
5. To determine the association between selected clinical variables and pain perception during removal of tegaderm versus dynaplaster among children.
6. To determine the association between selected demographic variables and occurrence of infection during presence of tegaderm versus dynaplaster among children.

7. To determine the association between selected clinical variables and occurrence of infection during presence of tegaderm versus dynaplaster among children.
8. To determine the association between selected demographic variables and effectiveness of tegaderm versus dynaplaster among children.
9. To determine the association between selected clinical variables and effectiveness of tegaderm versus dynaplaster among children.
10. To assess the level of satisfaction of nurses using tegaderm versus dynaplaster

The conceptual framework of the study was based on king's Goal Attainment Theory. A comparative study with Post-test only design was used. The study was conducted at Apollo Children Hospitals, Chennai. The study included 60 children who were selected by purposive sampling 30 were in the intervention group I and 30 were in the intervention group II. The variables of the study were pain perception and prevalence of infection.

An extensive review of literature and guidance by experts laid the foundation of development of demographic variable proforma, clinical variable proforma, effectiveness checklist, infection check list, wong baker's pain scale and rating scale on level of satisfaction of nurses. The data collection tools were validated and reliability was established. The main study was conducted after the pilot study.

The level of pain perception and prevalence of infection and effectiveness was assessed for tegaderm and dynaplaster of children. The level of satisfaction of

nurses was assessed among both the groups. The data obtained was analysed using descriptive and inferential statistics.

Demographic variables distribution

Most of the children were aged 1-3yrs (50%, 26%).Significant percentage of children were males (50%,60%),from nuclear family (53%,33%) with a family monthly income of 20000-30000 (40%,30%) and majority of the children were in primary school (47%,67%) in both tegaderm and dynaplaster group of children respectively.

Owens (2004) in an article proved that on comprehensive review pain measured for children aged between 0 and 3 years discussed their applicability to the group of children. Search of electronic data based and other electronic sources were supplemented by hand review of relevant journals to identify published measures for use in children aged between 0 and 3 years. Twenty eight pain measures were identified in the literature nine for neonates, ten for infants and nine for aged between one and 3 years.

Clinical variables of children

Majority of the children with tegaderm and dynaplaster had no co morbid illness(97%,93%), significant percentage of children had orthopaedic and surgical problems (63.3%,83.3%),most of the children received medications(57%,27%) through peripheral line (80%,93%) placed in Bracheo cephalic vein (80%,93%). Most of the children were intravenous line dependent for more than three days (47%, 63%) and secured with tegaderm and dynaplaster (47%, 83,3%).Sixty percent of children with dynaplaster had complications.

A descriptive study conducted by Vak (2007) on children to view the sources of pain and explore the views on pain relief strategies. An exploratory cross sectional descriptive design was used to investigate on what aids the children to think at the time of experiencing pain. The sample composed of 33% boys and 64% girls of 4- 16 years. The result has shown that mean +_S.D:9.25, +_3.04 and few were different from the mean presented in the children texts and drawing based on developmental stage and on difference based on gender.

The first objective of the study was to assess the level of pain perception and occurrence of infection during removal of tegaderm versus dynaplaster among children.

It was noted that majority of children with tegaderm experienced no pain and had no infection during removal (63.3%,80%)and majority of children with dynaplaster experienced severe pain and had infection during removal (75%,43%).

The above findings of the study is supported by Priyadharshini Johnson (2004) to investigate the prevalence of pain and characteristics of pain (frequency, duration, intensity) among children. It was then compared across different ages and genders. In this study about 735 children from school were surveyed, the results showed that 715(97.3%) have answered the questionnaires related to pain completely. The study concluded that the prevalence of pain, is increased with age and more pain was complained by female children.

The above findings is also supported by Cunha (2008), who performed a study on Centrally-placed IV-line infections are a frequent cause of fever in the

critical care unit. IV-line infection is not usually accompanied by local signs of infection, and usually presents as unexplained fever. The diagnosis should be considered only after other cause of fever has been ruled out. The likelihood of fever being due to IV.-line infection increases with duration of IV catheterization. Skin organisms i.e., Staphylococcus epidermidis/coagulase-negative staphylococci, and to a lesser extent, Staphylococcus aureus are the usual pathogens in IV line infection. Treatment of IV -line infection involves removal of the IV line. Empiric antibiotic therapy directed against gram-positive cocci/aerobic gram-negative bacilli is usually started after blood cultures have been obtained and removed catheter tip sent for semi quantitative culture.

The second objective of the study was to compare the effectiveness of tegaderm versus dynaplaster upon pain perception and occurrence of infection among children.

Mean and standard deviation with regard to pain perception of children while removing tegaderm was (M-1.06,SD-0.9) and while removing dynaplaster (M-8.4,SD-2.46).The difference was significant at $p<0.05$ level. The findings also revealed that the occurrence of infection in children while removing tegaderm (M-0.2, SD-0.1) and while removing dynaplaster (M-1, SD-0.4).The difference was significant at $p<0.001$ level. Hence null hypothesis H_{01} was rejected.

Priyadharshini Johnson (2004) in her study on 735 children from school she found that 715(97.3%) have answered the questionnaires related to pain completely. The study concluded that the prevalence of pain, is increased with age and more pain was complained by female children.

The researcher found that equal amount pain was there to equal gender.

The third objective of the study was to determine the effectiveness of tegaderm versus dynaplaster among children

The mean and standard deviation with regard to effectiveness of tegaderm was (M-26, SD-6.1) and dynaplaster group of children was (M-17,SD-2.6).The difference was significant at $p<0.001$ level. The null hypothesis H_{02} was rejected .

A randomised controlled trial conducted by Tripepi-Bova KA(1998) in United States to compare with gauze dressings, and transparent polyurethane dressings (TPDs)reduce patient dislodgment of peripheral intravenous (IV) catheters, phlebitis, and insertion site infiltration. 108 patients were allocated to TPDs and 121 were allocated to gauze dressings. Fewer patients who had TPDs dislodged the IV catheter compared with patients who had gauze dressings ($p< 0.05$). Rates of phlebitis and infiltration did not differ, although there was a trend toward a lower frequency of phlebitis and infiltration in patients assigned to TPDs. They found that transparent polyurethane dressings on peripheral IV sites resulted in fewer catheter dislodgments by patients than did gauze dressings. Non-significant trends for lower rates of phlebitis and IV site infiltration were found for patients who had transparent polyurethane dressings.

The fourth objective was to determine the association between selected demographic variables and pain perception during removal of tegaderm and dynaplaster among children.

There was significant association between selected demographic variables and pain perception with regard to monthly income($\chi^2 = 12.1$,df = 1) among children with tegaderm and in children with dynaplaster age of child ($\chi^2=5.25$,df

=1) , type of family(χ^2=3.9,df =1) at p<0.001, p<0.05 level. Hence null hypothesis H_{03} was rejected.

The fifth objective of the study was to determine the association between selected clinical variables and pain perception during removal of tegaderm and dynaplaster among children.

There was significant association between selected clinical variables and pain perception in children on tegaderm with regard to diagnosis (χ^2 =4.3,df = 1)and in children with dynaplaster with regard to dynaplaster insitu (χ^2=4.78,df =1), site of intravenous line insertion, (χ^2=4.5,df =1) at p<0.05. The null hypothesis H_{04} was rejected.

The researcher found that according to the diagnosis the pain will be increased because most of the children have surgical conditions in this study.

The sixth objective of the study was to determine the association between selected demographic variables and occurrence of infection during presence of tegaderm versus dynaplaster among children.

There was significant association between the selected demographic variables and presence of infection among children with tegaderm in regard to area of residence, (χ2 =4.39, df = 1) and in children with dynaplaster with regard to type of family (χ^2=4.7,df =1) at p<0.05 dynaplaster. The null hypothesis H_{05} was rejected.

The seventh objective of the study was to determine the association between selected clinical variables and occurrence of infection during presence of tegaderm versus dynaplaster among children.

There was significant association between the selected clinical variables and presence of infection among children with tegaderm and dynaplaster with regard to number of days of intravenous line insitu, ($\chi 2 = 4.39$, df = 1) at $p<0.05$. The null hypothesis H_{06} was rejected.

Thus the researcher concluded that the number of days of IV line insitu increases the chance of infection.

The eight objective of the study was to determine the association between selected demographic variables and effectiveness of tegaderm versus dynaplaster among children.

There was significant association between the selected demographic variables and effectiveness of tegaderm with regard to age, ($\chi^2 = 5.0$,df = 1) and dynaplaster with regard to type of family(χ^2=4.78,df =1) at $p<0.05$. The null Hypothesis H_{07} was rejected.

The researcher felt that more effective with tegaderm than dynaplaster because tegaderm was easy to apply and remove, water resistant, there is no allergies in site of application and there is no skin breakdown at the time of removal.

The nineth objective of the study was to determine the association between selected clinical variables and effectiveness of tegaderm versus dynaplaster among children.

There was significant association between selected clinical variables and effectiveness of tegaderm with regard to diagnosis, (χ^2 =4.2,df = 1) and dynaplaster with regard to indications for intravenous line (χ^2 =5.37,df = 1) at $p<0.05$. The null hypothesis H_{08} was rejected.

The tenth objective of the study was to assess the level of satisfaction of nurses using tegaderm and dynaplaster

The findings revealed that most of the tegaderm group of nurses were highly satisfied with tegaderm (90%), whereas (73%) of nurses using dynaplaster were moderately satisfied (73%).

Hence the researcher concluded that nurses using IV line felt more satisfied with tegaderm when compared with dynaplaster.

Similar results were obtained by Palefski and Stoddard (2001) a study was performed on assessed complications in 776 peripheral catheters-639 inserted by infusion nurses and 137 by generalist nurses. Thirty-six percent (36%) of catheters inserted by the generalists and 20% inserted by infusion nurses were removed for complications (*P*<= .001). Cellulites, infection, and sepsis were tracked by clinical signs and symptoms, but none were reported in either group.

Summary

This study has dealt with the discussion of findings in the present study which includes pain perception, prevalence of infection, effectiveness of tegaderm and dynaplaster and nurses satisfaction of intervention group I and intervention group II of children.

CHAPTER VI

SUMMARY, CONCLUSION, IMPLICATION AND RECOMMENDATON

The heart of the research project is in reporting the findings. This chapter gives a brief account of the present study including the conclusion drawn from the findings, nursing implications of the study and recommendations.

Summary

A Comparative Study to Assess the Effectiveness of Tegaderm Versus Dynaplaster Upon Pain Perception and Occurrence Of Infection During Removal Among Children at Selected Hospitals, Chennai.

Objectives of the study

1. To assess the level of pain perception and occurrence of infection during removal of tegaderm versus dynaplaster among children.
2. To compare the effectiveness of tegaderm versus dynaplaster upon pain perception and occurrence of infection among children.
3. To determine the effectiveness of tegaderm versus dynaplaster among children
4. To determine the association between selected demographic variables and pain perception during removal of tegaderm versus dynaplaster among children.
5. To determine the association between selected clinical variables and pain perception during removal of tegaderm versus dynaplaster among children.

6. To determine the association between selected demographic variables and occurrence of infection during presence of tegaderm versus dynaplaster among children.
7. To determine the association between selected clinical variables and occurrence of infection during presence of tegaderm versus dynaplaster among children.
8. To determine the association between selected demographic variables and effectiveness of tegaderm versus dynaplaster among children.
9. To determine the association between selected clinical variables and effectiveness of tegaderm versus dynaplaster among children.
10. To assess the level of satisfaction of nurses using tegaderm and dynaplaster

Null Hypothesis

Ho_1 There will be no significant difference between the pain perception and occurrence infection among children during removal of tegaderm versus dynaplaster

Ho_2 There will be no significant difference in the effectiveness of tegaderm versus dynaplaster.

Ho_3 There will be no significant association between selected demographic variables and pain perception of children during removal of tegaderm versus dynaplaster.

Ho_4 There will be no significant association between selected clinical variables and pain perception of children during removal of tegaderm versus dynaplaster.

Ho_5 There will be no significant association between selected demographic variables and occurrence of infection among children during presence of tegaderm versus dynaplaster.

Ho_6 There will be no significant association between selected clinical variables and occurrence of infection among children during presence tegaderm versus dynaplaster.

Ho_7 There will be no significant association between selected demographic variables and effectiveness tegaderm versus dynaplaster.

Ho_8 There will be no significant association between selected clinical variables and effectiveness of tegaderm versus dynaplaster.

The conceptual framework for the study was developed on the basis of kings Goal attainment theory, which was modified for the present study. An intensive review of literature and experts guidance laid the foundation to the development of tools such as demographic variable proforma and clinical variable proforma for children, infection check list, effectiveness checklist, pain assessment scale, and nurse's satisfaction checklist.

An evaluative –post test only design for children, was adopted for conducting the study. The present study was conducted at Apollo children's hospital tegaderm versus dynaplaster of children respectively. The sample size for the present study was 60 in that 30 Tegaderm and 30 in Dynaplaster who satisfied the inclusion criteria.

Investigator used the demographic variable and clinical variable proforma for children to obtain the baseline data. Check list was used to check the infection to identify weather children was receiving the infections, pain scale to assess the

pain perception while removing the tegaderm/dynaplaster. Check list was used to check the effectiveness of weather best in the tegaderm or dynaplaster. Rating scale to assess the level of nurse's satisfaction regarding both plasters. The data collection tools were validated and reliability was established. After the main study , the data collection for the main study was conducted for 6 weeks. The collected data was tabulated and analysed by using appropriate descriptive and inferential statistics.

The Major Findings of the Study

Demographic variables of children

Most of the children were aged 1-3yrs (50%,26%) .Significant percentage of children were males (50%,60%) ,from nuclear family (53%,33%) with a family monthly income of 20000-30000 (40%,30%) and majority of the children were in primary school (47%,67%) in both tegaderm & dynaplaster group of children respectively.

Clinical variables of children

Majority of the children with tegaderm and dynaplaster had no co morbid illness(97%,93%), significant percentage of children had orthopaedic and surgical problems (63.3%,83.3%),most of the children received medications(57%,27%) through peripheral line (80%,93%) placed in Bracheo cephalic vein (80%,93%). Most of the children were intravenous line dependent for more than three days (47%,63%) and secured with tegaderm and dynaplaster (47%,83,3%).Sixty percent of children with dynaplaster had complications.

Frequency and Percentage Distribution of Pain perception and Occurrence of Infection among Children using Tegaderm Versus Dynaplaster

It was noted that majority of children with tegaderm experienced no pain and had no infection during removal (63.3%,80%)and majority of children with dynaplaster experienced severe pain and had infection during removal (75%,43%).

Frequency and Percentage Distribution of Effectiveness of Tegaderm Versus Dynaplaster among Children.

It was noted that majority of the children using tegaderm had effective out come (90%) and (27%) had effective out come with dynaplaster.

Frequency and Percentage Distribution of Level of Satisfaction of Nurses using Tegaderm Versus Dynaplaster

The findings revealed that most of the tegaderm group of nurses were highly satisfied with tegaderm (90%), whereas (73%) of nurses using dynaplaster were moderately satisfied (73%).

Comparison of Mean and Standard Deviation of pain perception and occurrence of infection during removal of tegaderm versus dynaplaster children

Mean and standard deviation with regard to pain perception of children while removing tegaderm was (M-1.06,SD-0.9) and while removing dynaplaster (M-8.4,SD-2.46).The difference was significant at $p<0.001$ level.

The findings also revealed that the occurrence of infection in children while removing tegaderm (M-0.2, SD-0.1) and while removing dynaplaster (M-1, SD-0.4).The difference was significant at $p<0.001$ level. Hence null hypothesis H_{01} was rejected.

Comparison of Mean and Standard Deviation of Effectiveness of Tegaderm versus Dynaplaster among Children

The mean and standard deviation with regard to effectiveness of tegaderm was (M-26,SD-6.1) and dynaplaster group of children was (M-17,SD-2.6).The difference was significant at $p<0.001$ level. The null hypothesis H_{02} was rejected.

Association between Selected Demographic Variables and Pain Perception of Children using Tegaderm and Dynaplaster Using Wong Bakers Faces Pain rating Scale

There was significant association between selected demographic variables and pain perception with regard to monthly income($\chi^2 = 12.1$,df = 1) among children with tegaderm and in children with dynaplaster age of child ($\chi^2=5.25$,df =1) , type of family($\chi^2=3.9$,df =1) at $p<0.001$,$p<0.05$.Hence null hypothesis H_{03} was rejected.

Association between Selected Clinical Variables and Pain Perception of Children using Tegaderm versus Dynaplaster

There was significant association between selected clinical variables and pain perception in children on tegaderm with regard to diagnosis ($\chi^2 = 4.3$,df = 1) and in children with dynaplaster with regard to dynaplaster insitu ($\chi^2=4.78$, df =1),

site of intravenous line insertion, (χ^2=4.5,df =1) at p<0.05. The null hypothesis H_{04} was rejected.

Association between Selected Demographic Variables and Occurrence of infection of Children using Tegaderm versus Dynapalster Using Infection check list

There was significant association between the selected demographic variables and presence of infection among children with tegaderm in regard to area of residence, (χ^2 =4.39,df = 1) and in children with dynaplaster with regard to type of family(χ^2=4.7,df =1) at p<0.05 dynaplaster. The null hypothesis H_{05} was rejected.

Association between Selected Clinical Variables and Occurrence of Infection of Children using Tegaderm versus Dynaplaster

There was significant association between the selected clinical variables and presence of infection among children with tegaderm and dynaplaster with regard to number of days of intravenous line insitu, (χ2 =4.39, df = 1) at p<0.05. The null hypothesis H_{06} was rejected.

Association between selected demographic variables and effectiveness of tegaderm versus dynaplaster among children

There was significant association between the selected demographic variables and effectiveness of tegaderm with regard to age, (χ^2 =5.0,df = 1) and dynaplaster with regard to type of family(χ^2=4.78,df =1) at p<0.05. The null Hypothesis H_{07} was rejected.

Association between selected clinical variables and effectiveness of tegaderm versus dynaplaster among children

There was significant association between selected clinical variables and effectiveness of tegaderm with regard to diagnosis, ($\chi^{2=}$4.2,df = 1) and dynaplaster with regard to indications for intravenous line (χ^{2} $^{=}$5.37, df = 1) at $p<0.05$. The null hypothesis H_{08} was rejected.

Conclusion

The findings of the study revealed that the pain perception, prevalence of infection, and effectiveness is better in tegaderm while applications, and removing in intravenous line securement whereas major variation is noted in the dynaplaster. Thus study concludes that tegaderm is the best securing intravenous line and decreased pain while removing the plasters.

Implications

The findings of the study has implications in the different branches of nursing profession i.e. Nursing practice, Nursing administration, Nursing education, Nursing theory, Nursing research.

Nursing practice

The findings of the study revealed that the intravenous line is the important for the injections and bolus doses for medications in intensive care units, wards, operation theatre are in need of securing is the initiation to maintain the patency. In that securing is very important using appropriate plasters for securement mean while free from infections, complications and also so many days present in the skin so much sticky over the skin. So, cant able to remove while removing so

much of pain perceive the children so that can reducing the pain, infection and complications using a correct securement of plaster. The best effective strategies of securing and splinting, fixing the tegaderm should be avoiding too much of tight and too much of loose more important is while removing pain will not perceive the children.

With the above mentioned strategies tegaderm is found to be effective. All nurses play a vital role in caring intravenous line children. Tegaderm removal of technique can be known for the nurses to follow a better removing tegaderm and to create awareness among nurses and helps to have evidence practice.

Nursing education

With the emerging health care demands and newer trends in the field of nursing education, we must focus on the innovations to enhance the nursing care. The nursing students should be taught the removal of technique of the tegaderm. Therefore student nurses should be taught the clinical importance of intravenous line securing and removal decreased pain perception. Demonstration of proper technique and use of simulation in the clinical setup helps the students to acquire an adequate knowledge and incorporate it in their practice.

Nursing administration

With technological advances and ever growing challenges of health care, administrators have the responsibility to provide continuing nursing education opportunities to understand the intervention in improving securing the intravenous line and removal.

The enables the nurses to update the knowledge and to render the cost effective care to the children. The nurse administrators can train the nurses to identify the best method. Nurse administrators must periodically organize formal training programme to nurse for the removal of the tegaderm plaster intravenous line securing children. Awareness can be created among the nurses regarding the benefits of tegaderm in order to promote its use in clinical set up.

Nursing research

The professionals and the students can conduct further studies on cavelon precautions in both tegaderm versus dynaplaster. There is a need for extensive research in this area. Nurse researcher should appraise challenges and should perform scientific work by taking part in assessment, applications, evaluations, removal, for intravenous line securing plaster. The researcher can bring the researched techniques in to practice.

Researcher must focus on various measures in maintaining patient line, securing, prevent the complications of intravenous line in children. Tegaderm can be implemented to intravenous line securing and easy to removal and apply to attain a better out come.

Nursing theory

The conceptual and theories models exclusively for pain perception for children on intravenous line removal are yet to be developed by nursing theorist. In this study is based on Modified king's goal attainment theory which can be used to educate and guide the nurses.

Recommendations

- A study can be conducted on cost effectiveness of tegaderm versus dynaplaster.
- A similar study can be done on umbilical vein securing in preterm babies.
- A similar study can be done on a larger population to generalize results.
- A study can be conducted to assess the occurrence of infection tegaderm pads used for surgical dressing among post operative children.
- Similar study can be done on Endo tracheal tube intubation securing in preterm, term, neonates and children.

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APPENDIX I

LETTER SEEKING PERMISSION TO CONDUCT STUDY

Apollo College of Nursing
(A unit of Apollo Hospitals Educational Trust)
(Recognised by the Indian Nursing Council and Affiliated to the Tamil Nadu Dr. M.G.R. Medical University, Chennai)

CO/0222/13 *02.05.2013*

To

The Director
Apollo Childrens Hospital
No.15, Shafi Mohamed Road
Greams Road
Chennai – 600 006.

Respected Sir / Madam,

Sub: To request permission for research study- Reg.

Greetings! As a part of the curriculum requirement our 2nd year M. Sc. (N) student Ms. Premalatha.T has selected the following title for her research study.

"An comparative study to assess the effectiveness of tegaderm versus dynaplaster upon pain perception and occurrence of infection during removal among children at selected hospitals, Chennai".

So I kindly request your good selves to permit her to conduct study in your esteemed institution

Thanking You,

Dr.LATHA VENKATESAN
PRINCIPAL

Regd. Office : 21, Greams Lane Off, Greams Road, Chennai - 600 006. Ph. : +91-44-2829 3333, 2829 0200 Website : www.apollohospitalseducation.com
Unit Office : Vanagaram to Ambattur Main Road, Ayanambakkam, Chennai - 600 095. Phone : 044 - 2653 4387 Fax : 044 - 2653 4923 / 2653 4386

APPENDIX II

LETTER PERMITTING TO CONDUCT STUDY

Apollo College of Nursing
(A unit of Apollo Hospitals Educational Trust)
(Recognised by the Indian Nursing Council and Affiliated to the Tamil Nadu Dr. M.G.R. Medical University, Chennai)

CO/0222/13 *02.05.2013*

To

The Director
Apollo Childrens Hospital
No.15, Shafi Mohamed Road
Greams Road
Chennai – 600 006.

Respected Sir / Madam,

Sub: To request permission for research study- Reg.

Greetings! As a part of the curriculum requirement our 2nd year M. Sc. (N) student Ms. Premalatha.T has selected the following title for her research study.

"An comparative study to assess the effectiveness of tegaderm versus dynaplaster upon pain perception and occurrence of infection during removal among children at selected hospitals, Chennai".

So I kindly request your good selves to permit her to conduct study in your esteemed institution

Thanking You,

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APPENDIX III

ETHICAL COMMITEE CLEARANCE LETTER

Ethics Committee

Apollo HOSPITALS
TOUCHING LIVES

15 May 2013

To,
Ms. T. Premalatha
2nd Year M.SC (Nursing),
Department of Pediatric Nursing,
Apollo College of Nursing, Chennai.

Ref: A study to assess the effectiveness of tegaderm versus dynaplaster upon pain perception and occurrence of infection during removal among children at selected hospitals, Chennai.

Sub: Approval of the above referenced project and its related documents.

Dear Ms. T. Premalatha,

Ethics Committee-Apollo Hospitals has received the following document submitted by you related to the conduct of the above-referenced study.

- Project proposal.
- Waiver for Informed Consent form

The Ethics Committee-Apollo Hospitals reviewed and discussed the Project proposal documents submitted by you related to the conduct of the above referenced Project at its meeting held on 14 May 2013
The following Ethics Committee Members were present at the meeting held on 14 May 2013.

Name	Profession	Position in the committee
Dr. Rema Menon	Clinician	Member Secretary
Dr. P. Nalini Rao	Social Worker	Chairperson
Dr. Renuka Singh	Consultant Clinical Pharmacologist	Basic Medical Scientist
Dr. Krishna Kumar	Clinician-Medical Superintendent	EC -Member
Miss. N. Suseela	Retired English Teacher	Layperson
Ms. Maimoona Badsha	Lawyer	Lawyer
Dr. Vijayakumar	Clinician	EC-Member

Apollo Hospitals Enterprise Limited
21, Greams Lane, Off Greams Road, Chennai - 600 006
Tel : 91 - 44 - 2829 1618, 2829 3333, 91 - 44 - 2829 5465 Extn : 5045 / 6641
Fax : 91 - 44 - 2829 1618 / 4449 E - Mail : ecapollochennai@gmail.com

Ethics Committee

Apollo HOSPITALS
TOUCHING LIVES

After due ethical and scientific consideration, the Ethics Committee has approved the above presentation submitted by you.

The EC review and approval of the report is only to meet the academic requirement and will not amount to any approval of the conclusions / recommendations as conclusive, deserving adoption and implementation, in any form, in any healthcare institution.

The Ethics Committee is constituted and works as per ICH-GCP, ICMR and revised Schedule Y guidelines.

With Regards,

Date:
15/5/13

Dr. Rema Menon,
Ethics Committee-Member Secretary,
Apollo Hospitals, Chennai,
Tamil Nadu, India.

Dr. REMA MENON
MEMBER SECRETARY
ETHICS COMMITTEE, APOLLO HOSPITALS
APOLLO HOSPITALS ENTERPRISE LIMITED
CHENNAI-600 006, TAMILNADU

Apollo Hospitals Enterprise Limited
21, Greams Lane, Off Greams Road, Chennai - 600 006
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APPENDIX IV

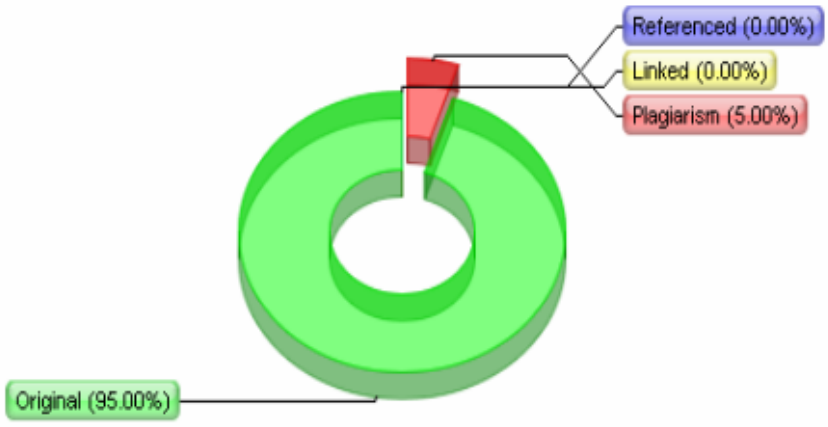
PLAGIARISM ORIGINALITY REPORT

	Plagiarism Detector - Originality Report
	Plagiarism Detector Project: [http://plagiarism-detector.com] Application core verrsion: 557

Originality report details:		
	Generation Time and Date:	1/9/2013 7:01:30 PM
	Document Name:	PREMALATHA THESIS.doc
	Document Location:	C:\Documents and Settings\Administrator\Desktop\ PREMALATHA THESIS.doc
	Document Words Count:	142105

Important Hint: to understand what exactly is meant by any report value - you can click "Help Image" . It will navigate you to the most detailed explanation at our web site.

Plagiarism Detection Chart:



Referenced 0% / Linked 0%

Original - 95% / 5% - Plagiarism

APPENDIX V

LETTER REQUESTING OPINIOS AND SUGGESTIONS OF THE EXPERTS FOR ESTABILISHING CONTENT VALIDITY OF RESEARCH TOOL

From

Ms.Premalatha.,

M.Sc., (Nursing) II Year,

Apollo College of Nursing,

Chennai-95.

To

Forwarded Through:

Dr. Latha Venkatesan,

Principal,

Apollo College of Nursing.

Sub: Request for opinions and suggestions of experts for content validity of Research tool.

Respected Sir/ Madam

Greetings! As a part of the Curriculum Requirement the following research title is selected for the study.

"A comparative study to assess the effectiveness of tegaderm versus dynaplaster upon pain perception and occurrence of infection during removal among children at Selected Hospitals, Chennai". I will be highly privileged to have your valuable suggestions with regard to the establishment of Content Validity of Research tool. So, I request you to validate my Research tool and give suggestions about the tool.

Yours Sincerely,

(MS. T. Premalatha)

APPENDIX VI

LIST OF EXPERTS FOR CONTENT VALIDITY

1. Dr. Latha Venkatesan, M.Sc (N). M.Phil., Ph.D.,
Principal,
Apollo College of Nursing,
Chennai-95.

2.Mrs.Kalpana bharani kumar, MBBS, MRCPH.,
Consultant Paediatric & Neonatalgist
Apollo Speciality Hospitals,
Chennai-95.

3. Mrs.Vijayalakshmi, M.Sc. (N), Ph.D., M.A .Psychology.,
Professor,
Department of Mental Health Nursing,
Apollo College of Nursing,
Chennai.

4. Mrs. Nesa Sathya Satchi, M.Sc. (N).,Ph.D.,
Professor,
Department of Child Health Nursing,
Apollo College of Nursing,
Chennai.

5.Mrs. J.Jaslina Gnanarani, M.Sc(N)
Reader
Department of Medical Surgical Nursing,
Apollo College of Nursing,
Chennai.

6**. Mrs.Jamuna Rani,** M.Sc (N)
Reader,
Department of Child Health Nursing,
Apollo College of Nursing,
Chennai-95.

APPENDIX VII

CERTIFICATE FOR CONTENT VALIDITY

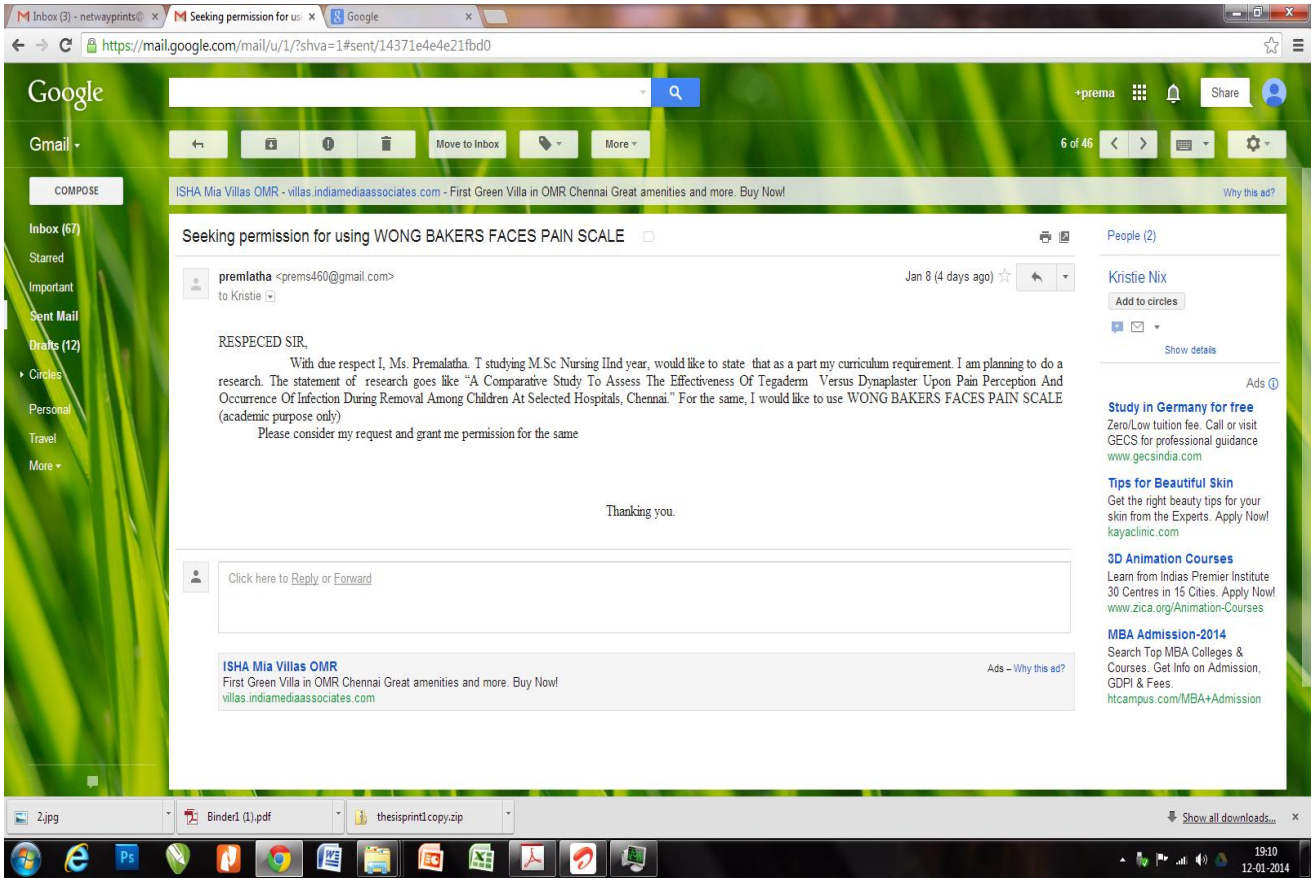
I hereby certify that I have validated the Research tool and interventional programme of Ms.T,PREMALATHA M.Sc. (Nursing) 2nd yr student who is undertaking research study.

A comparative study to assess the effectiveness of tegaderm versus dynaplaster upon pain perception and prevalence of infection during removal among children at selected hospitals, Chennai.

Signature of expert

APPENDIX VIII

LETTER SEEKING PERMISSION TO USE THE TOOL



APPENDIX IX

RESEARCH PARTICIPANT CONSENT FORM

Dear participant,

I am M.Sc. Nursing 2nd year student of Apollo College of Nursing,Chennai. As a part of my study, I have selected a Reserch Project on "A Comparative Study to assess the Effectiveness of Tegaderm Versus Dynaplaster upon Pain Perception and occurrence of Infection during Removal among Children at Selected Hospitals, Chennai".

I hereby seek your consent and co-operation to participate in the study. Please Be frank and honest in your response. The information collected will be kept confidential and anonymity will be maintained.

Signature of the Researcher

I …..**.....** , here by consent to participate and undergo the study.

Signature of the Participant

APPENDIX X

CERTIFICATE FOR ENGLISH EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the dissertation **"comparative study to assess the effectiveness of tegaderm versus dynaplaster upon pain perception and occurrence of infection during removal among children at selected hospitals, Chennai.** By Ms. T. Premalatha, II year M.Sc(N), Apollo College Of Nursing was edited for English language appropriateness by MR. S. YOGESH KANNA. M.A., B.Ed.

SIGNATURE

12/11/2014

S. YOGESH KANNA. M.A., B.Ed.,
(English BT)
GOVT HIGH SCHOOL,
POOMALUR,
TIRUPUR DIST 641663

APPENDIX XI

DEMOGRAPHIC VARIABLE

Purpose:

This proforma is used by the researcher to collect information on the demographic variables of children such as age, developmental stage, gender, birth weight, present weight, religion, type of family, area of residence and family monthly income.

Instructions:

The researcher will collect the information by interviewing the mother and by reviewing case sheet for relevant details.

Sample number.....

UHID NUMBER.....

1. Age of the child in..... yrs

1.1 1 - 3

1.2 4 - 6

1.3 7 - 9

1.4 10-12

2. Gender

2.1 Male

2.2 Female

3. Type of family

3.1 Nuclear

3.2 Joint

4. Area of residence

4.1 Urban

4.2 Rural

4.3 Sub urban

5. Family monthly income in Rupees

5.1 < 20,000

5.2 30,000

5.3 > 40,000

6. Educational status of the children

6.1 Not Started Formal Education

6.2 Kinder Garten

6.3 Primary School

APPENDIX XII

CLINICAL VARIABLE

Purpose:

This proforma is used by the researcher to collect information on the clinical variables of children such as age of diagnosis, type of intra venous line, present illness, types of adhesive material, present illness, number of days of line insitu etc.

Instructions:

The researcher will collect the information by interviewing the nurses and by reviewing the hospital records of the children.

1. Age of the child when diagnosed---------- years

1.1 1 – 3

1.2 4 – 6

1.3 7 – 9

1.4 10- 12

2. co-morbid illness

2.1 Present

2.2 Absent

2.3 If present specify.....

3. Diagnosis.....

3.1 Cardiac Disease

3.2 Infections

3.3 Respiratory Disease

3.4 Any Other (Specify).....

4. Indication for Intravenous line

4.1 Medications

4.2 Parental Nutrition

4.3 Blood Transfusion

4.4 Intravenous Fluids

5. Type of intravenous line

5.1 Peripheral Line

5.2 Central Line

6. Site of intravenous line insertion

6.1 Cephalic Vein

6.2 Bracheo Cephalic Vein

6.3 Jugular vein

6.4 femoral vein

7. Type of adhesive material used

7.1 Tegaderm

7.2 Dynaplaster

7.3 Micro pore

7.4 Durapore

8. Number of days of tegaderm / dynaplaster in situ

8.1 1 – 3 Days

8.2 3 - 5 Days

8.3 5- 7 Days

9. Number of days of Intravenous line in situ

9.1 1- 3 days

9.2 3 -5 days

9.3 5-7 days

10. Is there any intravenous complication noted?

10.1 Yes

10.2 No

10.3 If yes specify.....

APPENDIX XIII

PAIN ASSESSMENT SCALE (WONG BAKERS SCALE)

Purpose:

This is a standardized scale used to measure the pain perception of children during removal of plaster as scored by researcher.

Instructions:

The researcher observes and documents the pain perception of the children undergoing removal of plaster by pointing out the each face using the words to identify the pain perception.

0	**No hurt**
2	**Hurts little bit**
4	**Hurts little more**
6	**Hurts even more**
8	**Hurts whole lot**
10	**Hurts worst**

Score interpretation

0 : No pain

2 : Mild pains

4 &6 : Moderate pain

8 &10 : Severe pain

APPENDIX XIV

BLUE PRINT OF CHECK LIST ON OCCURENCE OF INFECTION OF VERSUS TEGADERM DYNAPLASTER

S.NO	INFECTION CHECK LIST	ITEM NO	TOTAL NO OF ITEM	PERCENTAGE
1.	Fever	1,2,3,4,	4	50%
2.	Infection	5,6,7,8,	4	50%

APPENDIX XV

OBSERVATIONAL CHECK LIST ON INFECTION OCCURENCES DURING USE OF TEGADERM VERSUS DYNAPLASTER

Purpose

This check list was prepared by the researcher to assess the occurrence infection during use of tegaderm/dynaplaster.

Instructions

The researcher will collect the information by observing site after removal of tegaderm/dynaplaster to determine the infections.

S.NO	SIGNS IF INFECTION	YES	NO
1	Fever (>101 degree) ferenhit		
2	Urticaria		
3	Pain at the site of cannula insertion		
4	Redness		
5	Tenderness		
6	Area around the site of cannula insertion is warm to touch		
7	Discharge at the site of cannula insertion		
8	Edema at the site of cannula insertion		

Score	percentage	Interpretation
<4	<50	No infection
5 – 8	50 – 100	Infection

APPENDIX XVI

BLUE PRINT OF RATING SCALE ON EFFECTIVENESS OF TEGADERM VERSUS DYNAPLASTER

SNO	ITEM GROUPING	ITEM NO	TOTAL NUMBER OF ITEM	PERCENTAGE
1	Advantages of adhesive material	4,6	2	20%
2	Disadvantages	2,3,7,10	4	40%
3	Complications	5,8,9	3	20%
4	Cost	1	1	10%
	Total		10	100%

APPENDIX XVII

OBSERVATIONAL CHECK LIST ON EFFECTIVENESS OF TEGADERM VERSUS DYNAPLASTER

Purpose

This check list is designed to analyse the effectiveness of tegaderm/dynaplaster.

Instructions:

The researcher uses this check list to find out the effectiveness of the tegaderm, Versus dynaplaster.

S.NO	Features/Components	EFFECTIVE	MODERATELY EFFECTIVE	INEFFECTIVE
1	Easy to apply			
2	Needed frequent change.			
3	Affordable			
4	Water resistant			
5	occurrence of infections			
6	Easy to remove.			
7	Needed additional splinting.			
8	Allergies in site of application.			
9	Skin break down at the time of removal.			
10	Adherence after removal			

Score	Percentage	Interpretation
< 10	<33	Ineffective
11 – 20	34 – 66	Moderately effective
21 – 30	67 – 100	Effective

APPENDIX XVIII

BLUE PRINT OF RATING SCALE ON LEVEL OF SATISFACTION OF TEGADERM VERSUS DYNAPLASTER

S.NO	ITEM GROUPING	ITEM NO	TOTAL NO OF ITEM	PERCENTAGE
1.	Approach of the researcher	1,2,3,4,5	5	50%
2.	Characteristics of the interventions	6,7,8,9,10	5	50%

APPENDIX XIX

RATING SCALE TO ASSESS THE LEVEL OF SATISFACTION OF NURSES REGARDING TEGADERM VERSUS DYNAPLASTER UPON DURING REMOVAL OF PLASTER AMONG CHILDREN.

Purpose:

The rating scale is used by the nurses to assess the level of satisfaction of nurses during removal of tegaderm and dynaplaster.

Instructions:

The rating scale consists of 10 items kindly give your responses freely and frankly. The data collected will be confidential. The responses range from highly satisfied to dissatisfied with score of 4, 3, 2, 1, respectively

S.No	Questions	Highly Satisfied (4)	Moderately Satisfied(3)	Satisfied (2)	Dissatisfied (1)
1	Prior information given about the removal of tegaderm/dynaplaster.				
2	The courtesy of the researcher.				
3	Presence of investigator during removal.				
4	Approach of the researcher.				
5	Knowledge of the researcher regarding the intervention.				

6	Anxiety level of the children while removing tegaderm/dynaplaster.				
7	Children's pain perception while removing tegaderm/dynaplaster.				
8	Time taken to calm the children after removal of tegaderm / dynaplaster.				
9	Durability of tegaderm/dynaplaster.				
10	Time consumption to remove tegaderm/dynaplaster				

Score Interpretations:

Score	**Percentage**	**Interpretation**
<10	<25	Dissatisfied
11-20	26 -50	Satisfied
21-30	51 -75	Moderately satisfied
31-40	76 -100	Highly satisfied

APPENDIX XX

DATA CODE SHEET

DEMOGRAPHIC VARIABLES PERFORMA

1. AGE: Age of the child in..... yrs

1.1 1 - 3

1.2 4 - 6

1.3 7 - 9

1.4 10-12

2.GEN: Gender

2.1 Male

2.2 Female

3. FAM: Type of family

3.1 Nuclear

3.2 Joint

4. RES: Area of residence

4.1 Urban

4.2 Rural

4.3 Sub urban

5.INC: Family monthly income in Rupees

5.1 > 20,000

5.2 30,000

5.3 < 40,000

6.EDU: Educational status of the children

6.1 Not Started Formal Education

6.2 Kinder Garten

6.3 Primary School

APPENDIX XXI

DATA CODE SHEET

CLINICAL VARIABLE

1. AGE: Age of the child when diagnosed---------- years

1.1 1 – 3

1.2 4 – 6

1.3 7 – 9

1.4 10- 12

2. CMI: co-morbid illness

2.1 Present

2.2 Absent

2.3 If present specify.....

3. DIA: Diagnosis.....

3.1 Cardiac Disease

3.2 Infections

3.3 Respiratory Disease

3.4 Any Other (Specify).....

4. IND: Indication for Intravenous line

4.1 Medications

4.2 Parental Nutrition

4.3 Blood Transfusion

4.4 Intravenous Fluids

5. TIVL: Type of intravenous line

5.1 Peripheral Line

5.2 Central Line

6. SIVLI: Site of intravenous line insertion

6.1 Cephalic Vein

6.2 Bracheo Cephalic Vein

6.3 Scalp Vein

6.4 Dorsalis Pedis

7. TAMU: Type of adhesive material used

7.1 Tegaderm

7.2 Dynaplaster

7.3 Micro pore

7.4 Durapore

8. NOD: Number of days of tegaderm / dynaplaster in situ

8.1 1 – 3 Days

8.2 3 - 5 Days

8.3 5- 7 Days

9. NODILS: Number of days of Intravenous line in situ

9.1 1- 3 days

9.2 3 -5 days

9.3 5-7 days

10. CI: Is there any intravenous complication noted?

10.1 Yes

10.2 No

10.3 If yes specify.....

APPENDIX XXII
MASTER CODE SHEET
TEGADERM

Demographic Variable							Clinical Variable										Pain	Infection Score	Effectiveness Score	LSN
S.No	AGE	GEN	FAM	RES	INC	EDU	AGE	CMI	DIA	IND	TIVL	SIVLI	TAMU	NOD	NODILS	CI				
1	1.1	2.1	3.1	4.2	5.3	6.1	I.1	2.2	3.4	4.1	5.1	6.2	7.1	8.2	9.2	10.2	2	0	27	37
2	1.2	2.1	3.2	4.1	5.2	6.3	1.2	2.2	3.4	4.4	5.1	6.2	7.1	8.2	9.2	10.2	0	0	27	36
3	1.3	2.1	3.1	4.1	5.1	6.3	1.3	2.2	3.1	4.4	5.1	6.2	7.1	8.3	9.3	10.2	0	0	29	40
4	1.3	2.2	3.1	4.1	5.1	6.3	1.3	2.2	3.1	4.4	5.1	6.2	7.1	8.3	9.3	10.2	0	0	27	30
5	1.2	2.1	3.1	4.2	5.1	6.2	1.2	2.2	3.1	4.1	5.1	6.2	7.1	8.3	9.3	10.2	0	0	19	36
6	1.1	2.2	3.2	4.1	5.1	6.2	1.2	2.2	3.4	4.4	5.1	6.2	7.1	8.1	9.1	10.2	0	0	26	40
7	1.2	2.2	3.2	4.2	5.1	6.3	1.2	2.2	3.1	4.4	5.1	6.2	7.1	8.3	9.3	10.2	0	0	20	37
8	1.1	2.2	3.1	4.1	5.3	6.1	1.1	2.2	3.4	4.4	5.1	6.2	7.1	8.1	9.1	10.2	2	0	24	40
9	1.1	2.1	3.1	4.1	5.3	6.1	1.1	2.2	3.4	4.4	5.1	6.2	7.1	8.2	9.2	10.2	4	0	24	40
10	1.1	2.1	3.1	4.1	5.3	6.1	1.1	2.2	3.4	4.4	5.1	6.2	7.1	8.1	9.1	10.2	4	0	30	30
11	1.3	2.2	3.2	4.1	5.1	6.3	1.3	2.2	3.4	4.1	5.1	6.2	7.1	8.2	9.2	10.2	4	1	27	40
12	1.3	2.2	3.1	4.3	5.2	6.3	1.3	2.2	3.4	4.1	5.1	6.2	7.1	8.1	9.1	10.2	0	1	30	40
13	1.1	2.2	3.2	4.3	5.2	6.2	1.1	2.2	3.4	4.1	5.1	6.2	7.1	8.1	9.1	10.2	4	1	27	35
14	1.1	2.2	3.2	4.2	5.2	6.1	1.1	2.2	3.4	4.1	5.1	6.2	7.1	8.2	9.2	10.2	0	0	28	35
15	1.1	2.1	3.1	4.2	5.2	6.1	1.1	2.2	3.4	4.1	5.1	6.2	7.1	8.2	9.2	10.2	0	1	28	36
16	1.3	2.2	3.2	4.2	5.2	6.3	1.4	2.2	3.4	4.1	5.1	6.2	7.1	8.2	9.2	10.2	0	1	29	40
17	1.1	2.1	3.2	4.1	5.2	6.1	1.3	2.2	3.4	4.1	5.1	6.2	7.1	8.3	9.3	10.2	0	0	27	36
18	1.2	2.1	3.2	4.1	5.2	6.3	1.4	2.2	3.4	4.1	5.1	6.2	7.1	8.1	9.2	10.2	0	0	28	36
19	1.1	2.2	3.1	4.1	5.3	6.2	1.1	2.2	3.1	4.1	5.2	6.3	7.1	8.3	9.3	10.2	0	0	26	40
20	1.4	2.2	3.2	4.1	5.2	6.3	1.3	2.2	3.1	4.1	5.2	6.3	7.1	8.1	9.1	10.2	0	0	20	37
21	1.1	2.2	3.2	4.2	5.1	6.1	1.1	2.2	3.1	4.1	5.2	6.3	7.1	8.1	9.1	10.2	0	0	24	40
22	1.4	2.2	3.2	4.2	5.2	6.3	1.3	2.2	3.1	4.4	5.2	6.3	7.1	8.1	9.1	10.2	0	0	25	40
23	1.3	2.1	3.1	4.1	5.2	6.3	1.3	2.2	3.4	4.4	5.1	6.2	7.1	8.1	9.1	10.2	0	0	26	40
24	1.4	2.1	3.1	4.1	5.3	6.3	1.4	2.2	3.4	4.4	5.1	6.2	7.1	8.1	9.1	10.2	4	0	26	40
25	1.1	2.1	3.2	4.1	5.2	6.2	1.1	2.2	3.4	4.1	5.1	6.2	7.1	8.1	9.1	10.2	2	1	23	30
26	1.1	2.1	3.1	4.1	5.3	6.1	1.1	2.2	3.4	4.1	5.1	6.2	7.1	8.1	9.1	10.2	2	0	26	40
27	1.4	2.1	3.1	4.1	5.3	6.3	1.4	2.2	3.2	4.4	5.1	6.2	7.1	8.2	9.2	10.2	2	0	26	40
28	1.1	2.1	3.1	4.2	5.1	6.2	1.1	2.2	3.1	4.1	5.1	6.4	7.1	8.2	9.2	10.2	0	0	25	30
29	1.4	2.2	3.2	4.2	5.1	6.3	1.4	2.2	3.4	4.4	5.1	6.2	7.1	8.1	9.1	10.2	2	0	28	36
30	1.1	2.2	3.2	4.3	5.1	6.2	1.1	2.2	3.1	4.1	5.2	6.4	7.1	8.2	9.2	10.2	0	0	28	36

DYNAPLASTER

Demgraphic Variable							Clinical Variable										Pain Score	Infection Score	Effectiveness Score	LSN
S.No	AGE	GEN	FAM	RES	INC	EDU	AGE	CMI	DIA	IND	TIVL	SIVLI	TAMU	NOD	NODILS	CI				
1	1.4	2.2	3.2	4.2	5.3	6.3	1.4	2.2	3.1	4.4	5.2	6.2	7.2	8.3	9.3	10.3	10	1	16	21
2	1.4	2.2	3.1	4.1	5.1	6.3	1.4	2.2	3.4	4.1	5.2	6.2	7.2	8.1	9.1	10.1	6	1	18	26
3	1.1	2.1	3.2	4.2	5.3	6.2	1.1	2.2	3.4	4.4	5.1	6.2	7.2	8.1	9.1	10.1	8	0	17	23
4	1.3	2.1	3.1	4.1	5.2	6.3	1.3	2.1	3.4	4.4	5.1	6.2	7.2	8.3	9.3	10.1	10	1	19	26
5	1.4	2.1	3.2	4.1	5.1	6.3	1.4	2.2	3.4	4.4	5.1	6.2	7.2	8.1	9.1	10.1	6	0	16	23
6	1.4	2.2	3.2	4.1	5.3	6.3	1.4	2.2	3.4	4.4	5.1	6.2	7.2	8.1	9.1	10.1	8	0	18	15
7	1.4	2.2	3.2	4.1	5.2	6.3	1.4	2.2	3.4	4.4	5.1	6.2	7.2	8.1	9.1	10.1	8	1	17	21
8	1.1	2.1	3.2	4.1	5.1	6.1	1.1	2.2	3.4	4.4	5.1	6.2	7.2	8.1	9.1	10.1	6	0	19	15
9	1.2	2.1	3.2	4.1	5.3	6.2	1.2	2.2	3.4	4.4	5.1	6.2	7.2	8.1	9.1	10.1	8	0	17	25
10	1.2	2.1	3.2	4.1	5.3	6.2	1.2	2.2	3.4	4.4	5.1	6.2	7.2	8.1	9.1	10.1	8	0	17	25
11	1.1	2.1	3.2	4.1	5.2	6.1	1.1	2.2	3.4	4.4	5.1	6.2	7.2	8.1	9.1	10.1	8	1	16	25
12	1.4	2.1	3.2	4.1	5.2	6.3	1.4	2.2	3.4	4.4	5.1	6.2	7.2	8.1	9.1	10.1	8	1	16	25
13	1.4	2.1	3.2	4.2	5.3	6.3	1.4	2.2	3.4	4.4	5.1	6.2	7.2	8.1	9.1	10.2	6	0	18	20
14	1.1	2.1	3.2	4.1	5.1	6.1	1.1	2.2	3.4	4.4	5.1	6.2	7.2	8.1	9.1	10.1	6	0	16	20
15	1.2	2.1	3.2	4.1	5.2	6.3	1.2	2.1	3.4	4.4	5.1	6.2	7.2	8.1	9.1	10.2	8	0	18	25
16	1.4	2.2	3.1	4.1	5.3	6.3	1.4	2.2	3.4	4.4	5.1	6.2	7.2	8.2	9.1	10.2	10	1	18	21
17	1.3	2.1	3.1	4.3	5.2	6.3	1.3	2.2	3.4	4.1	5.1	6.2	7.2	8.1	9.2	10.1	8	0	20	26
18	1.3	2.1	3.2	4.1	5.1	6.3	1.3	2.2	3.4	4.4	5.1	6.2	7.2	8.1	9.1	10.1	10	0	17	23
19	1.1	2.1	3.2	4.2	5.1	6.1	1.1	2.2	3.4	4.1	5.1	6.2	7.2	8.3	9.3	10.2	10	0	19	26
20	1.2	2.2	3.2	4.2	5.2	6.3	1.2	2.2	3.4	4.4	5.1	6.2	7.2	8.2	9.2	10.2	8	0	15	23
21	1.1	2.2	3.1	4.1	5.3	6.3	1.1	2.2	3.4	4.4	5.1	6.2	7.2	8.2	9.2	10.1	10	3	17	15
22	1.4	2.1	3.1	4.3	5.1	6.3	1.4	2.2	3.4	4.4	5.1	6.2	7.2	8.2	9.2	10.2	8	4	17	21
23	1.2	2.1	3.1	4.2	5.1	6.2	1.2	2.2	3.4	4.1	5.1	6.2	7.2	8.2	9.2	10.1	8	3	19	15
24	1.4	2.2	3.2	4.2	5.2	6.3	1.4	2.2	3.4	4.4	5.1	6.2	7.2	8.1	9.2	10.1	10	2	16	25
25	1.4	2.2	3.1	4.3	5.1	6.3	1.4	2.2	3.4	4.4	5.1	6.2	7.2	8.2	9.2	10.1	10	2	17	25
26	1.1	2.1	3.2	4.2	5.2	6.1	1.2	2.2	3.4	4.4	5.1	6.2	7.2	8.2	9.2	10.1	10	3	16	25
27	1.4	2.1	3.2	4.1	5.3	6.3	1.4	2.2	3.4	4.4	5.1	6.2	7.2	8.1	9.1	10.1	10	2	16	25
28	1.1	2.2	3.1	4.1	5.1	6.1	1.3	2.2	3.1	4.1	5.1	6.2	7.2	8.2	9.2	10.2	8	2	18	20
29	1.4	2.2	3.2	4.2	5.1	6.3	1.4	2.2	3.4	4.4	5.1	6.2	7.2	8.1	9.1	10.1	8	2	16	20
30	1.4	2.2	3.1	4.2	5.1	6.3	1.1	2.2	3.1	4.1	5.2	6.4	7.2	8.2	9.1	10.2	10	2	18	25

APPENDIX XXIII

PHOTOGRAPHS DURING IV PLASTER (TEGADERM) REMOVAL

PHOTOGRAPHS DURING IV PLASTER (DYNAPLASTER) REMOVAL